DOCUMENT RESUME

ED 027 405 VT 007 761

By-Annis, William H.; Perrigo, Joseph E.

A Pilot Study to Determine the Need for Curriculum Modification in Vocational-Technical Education in New Hampshire.

New Hampshire Research Coordinating Unit for Vocational-Technical Education, Concord.; New Hampshire State Dept. of Education, Concord.; New Hampshire Univ., Durham.

Pub Date 68

Note-99p.

EDRS Price MF-$0.50 HC-$5.05

Descriptors-Curriculum, *Curriculum Evaluation, Curriculum Research, *Educational Needs, *Employer Attitudes, Interviews, Job Skills, Occupational Information, *Occupational Surveys, Pilot Projects, Questionnaires, State Surveys, Technical Education, *Vocational Education

Identifiers-New Hampshire

A pilot study was conducted to determine if vocational-technical educational curriculums were adequate in a selected portion of New Hampshire and to determine what could be done to correct existing deficiencies. Interviews were conducted with 221 of the 463 agricultural enterprises, heavy industry, restaurant, and service industry businesses in the sample area. Some major findings were: (1) 55 percent of employers considered current programs inadequate, (2) Specialized jobs were identified for which very little training is available, (3) Current enrollments indicate a lack of emphasis in training for new specialized jobs, (4) Sales, mechanics, mathematics, supervisory, and food service areas are in need of improved curriculums in the opinion of employers, (5) Employers desired that their employees have training in courtesy, manners, conversation and other related areas, (6) Employers were generally willing to provide some work experience for interested students, and (7) Employers indicated a need for increased communication among business, education, and students. Several recommendations were made, among them that education in the development of personality be offered and the aid of business be secured in providing training. (DM)

ED027405

A49

CONTEMPORARY

a pilot study to determine the need for curriculum modification in vocational-technical education

VT007761

university of new hampshire
new hampshire state department of education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

1

A PILOT STUDY TO DETERMINE THE NEED FOR CURRICULUM MODIFICATION IN VOCATIONAL-TECHNICAL EDUCATION IN NEW HAMPSHIRE

by

2

William H. Annis

and

Joseph E. Perrigo

3

The University of New Hampshire Univ., Durham
The New Hampshire State Department of Education
in Cooperation with
4
The New Hampshire Research Coordinating Unit
for Vocational-Technical Education, Concord.

ABSTRACT

TITLE: Pilot Study to Determine the Need for Curriculum Modification in Vocational-Technical Education

Cooperating Agencies: College of Agriculture, University of New Hampshire, in cooperation with The New Hampshire Research Coordinating Unit, The New Hampshire State Department of Education.

Principle Investigators: William H. Annis

Joseph E. Perrigo

Purpose: The purpose of the pilot study was dual in nature. One objective was to determine if the current programs of vocational-technical education in the study area were adequate for the purposes of employers in that area. Secondly, it was to determine what types of course offerings and content changes would be needed to promote adequacy, if programs were deficient.

Method: An instrument was developed, pre-tested and revised for use in the study. The instrument was administered to a stratified random sample of 221 businesses in the eight specified towns and cities of Southern New Hampshire.

Findings and Interpretations: There was found a lack of necessary and contemporary vocational curricula in the study area for several specialized, yet widespread, jobs. It was found that educational systems at the local and state levels have not succeeded in providing sufficient training for those who held semi-skilled or unskilled jobs. New types of abbreviated courses are needed for such people who must seek entry jobs at the production or mid-management level. Other curricula were found to lack training in newly developed operations which were a result of new technology. Such a lack of training meant that businesses and industries were accepting much of the burden for up-to-date training of their employees. Educational systems must maintain more complete and organized communication with employers if they are to keep pace with the current demands placed upon employees.

The data collection instrument was revised in light of interviewers' experiences in the study. It is available for use in other areas of the state.

ACKNOWLEDGEMENTS

The Director and the Coordinator of the study are grateful to the personnel of the businesses and industries contacted for both their expenditure of time and effort, without which the study could not have been completed.

To Susan Bascomb, Diane Dalphonse and Philip Chadwick, College Work-Study Students of the University of New Hampshire, are extended grateful thanks for the weeks spent conferring with the respondents.

Dr. Richard Barker, Director of the Research Coordinating Unit, the New Hampshire State Department of Education, is acknowledged for his continuous patient assistance to the staff in guiding the progress of the study.

Appreciation is offered to Mrs. Brenda Clement, Office of Agricultural Education, University of New Hampshire, for her efforts to manage the daily operations of the staff and for her willingness to assume the secretarial duties for the study.

Superintendents of Schools, Claude Leavitt of the Hudson-Pelham School District, and Paul Johnson of the Salem School District, greatly helped the work of the study. For their contribution of temporary facilities to the staff they are extended sincere appreciation.

To all other persons having a role in the study, the gratitude of the entire staff is expressed.

TABLE OF CONTENTS

Page

CHAPTER I

Instrument Development 2
Population and Procedure 2
Participation of Respondent Population 3
Business Classifications in Respondent Population 4

CHAPTER II

Number of Personnel in Direct Concern of the Study 6
Reasons for Hiring Personnel 7
Adequacy of Present Programs of Occupational Education 8
Jobs That Have Been Difficult or Impossible to Fill 9
Jobs Expected to Be Filled During Next Two Years 12
Present Secondary School Curriculum Offerings in Study Area 15
Educational Programs That Could Be Provided to Benefit Study Area 17
Relative Importance of Training in Personality and Personal Development 20
Suggested Personality or Personal Development Training 22
Willingness of Respondents to Help Train Students 23
Job Descriptions Constructed from Study Data 26
Personnel Needs in Nashua-Manchester Area 26
Skills Needed for Six or More Jobs 62

CHAPTER III

Summary, Conclusions, Recommendations 68

APPENDIX A 73

APPENDIX B 76

APPENDIX C 81

APPENDIX D 87

APPENDIX E 90

CHAPTER I

THE PROBLEM AND ITS SETTING

The purpose of this study was to provide data that would indicate if curricula modification is necessary in local and state educational systems training students for employment in New Hampshire.

The objectives were:

1. To determine the adequacy of present programs in Vocational-Technical Education.
2. To determine what course offerings and content changes would promote adequacy if present programs were found not to be adequate.

It was felt that changes were needed to increase the value of occupational training for the persons who are its students and teachers, and to create optimum use of the educational facilities serving these people. It was also felt that an attempt should be made to discover what are the realistic needs education should fulfill for employers in the State of New Hampshire.

Of secondary importance was the development of a data collecting instrument that could be used in all parts of the State, in all types of businesses.

One of the areas of most rapid population and industrial growth in the State of New Hampshire lies along the New Hampshire-Massachusetts border between the towns of Brookline and Salem. This area has an unemployment rate of less than 1.5% and was considered to be a situation indicative of present and future needs for educational emphasis. The preponderance of business and industry in the study area suggested that here was a labor force, which was or could become, involved in Vocational-Technical Education. Such abundance and diversity of these businesses is representative of a tendency in the entire state as both industrial immigration and new businesses cause New Hampshire to be one of the most rapidly industrializing states in the nation (percent total labor force employed in industry). There seemed to exist a need for intensified communication among business, education and the labor force. This study has sought to provide a part of it.

INSTRUMENT DEVELOPMENT

Early in the work of this pilot study it was decided that the interview technique would be used for data collection. It was felt that such a technique would be best suited to the purposes of the study since extensive information was sought from the respondent population. There was a distinct effort made to gather as much pertinent data from each respondent as was possible.

Early drafts of the instrument were pre-tested in the Durham-Dover-Portsmouth area with automobile dealers, farmers, gasoline station owners, newspaper publishers, and restaurant owners. As a result of pre-testing the instrument was revised for use in the study.

Throughout the duration of the study, notes on deficiencies of the instrument and recommendations for its improvement were made. From this information an instrument was designed and is included in Appendix II. It was felt that this revised instrument incorporated both an easily used format with understandable questions for gathering of the data required for the pilot study.

POPULATION AND PROCEDURE

From the towns of Brookline, Derry, Hollis, Hudson, Nashua, Pelham, Salem and Windham (which support 1,675 businesses), 463 businesses were randomly selected as members of the sample population. This 27 percent sample was chosen to provide an adequate number of businesses in all of the classifications enumerated in Table 1. The number of employees in these businesses ranged from 1 to more than 7,000. The 1966 New Hampshire Register and Legislative Manual was used as a listing for the population selection. Because the source for selection was two years old, the selected population was substantially reduced. In grouping the total population prior to sampling, an effort was made to avoid unnecessary duplication of businesses, but for those businesses which frequently occurred in many of the cities and towns approximately 27 percent of their total number was selected.

Each potential respondent was mailed a letter explaining the purpose of the study, a request for an interview, and a generalized list of the information sought from him. All appointments were confirmed by telephone. The staff generally conferred for 30-45 minutes with either a personnel manager, or some other person in charge of employment with each business. Many respondents chose to show their facilities to the staff member to acquaint him with the operation and employment characteristics of the business. The data were collected between July 10, 1968 and August 6, 1968.

PARTICIPATION OF RESPONDENT POPULATION

It was decided early in the work of the study that there would be a constant effort to gather data representative of the many businesses and industries in the State of New Hampshire.

The initial selected population of 463 businesses was reduced to 221 because of several reasons. Table 1.

For the staff, the single most discouraging aspect of the study was the inability of many sample members to confer. It was decided that the summer season was a much too busy time for many persons to perform tasks other than those required by their jobs.

Table 1

PARTICIPATION WITHIN THE SELECTED POPULATION

	Number	Percent of selected population
Respondents participating in study	221	47.7
No contact because of insufficient address, no telephone number, or inability to schedule convenient appointment	103	22.2
Out of business	59	12.8
Refusal to confer	35	7.6
Moved, no address left	29	6.3
Personnel office located out-of-state	9	1.9
Personnel on vacation when contacted	5	1.1
Cannot divulge information requested	2	0.4
TOTAL	463	100.0

BUSINESS CLASSIFICATIONS IN RESPONDENT POPULATION

To evaluate the numbers of each type of business such information was also recorded. Table 2.

The classification system used was that of the New Hampshire Department of Employment Security. As the study progressed, it was found to be inadequate since it did not provide breakdown of the sales and service industries. For example, in the "service and other" classification were included such businesses as retail clothing sales, gasoline service stations, and automotive dealers, all of which were not described in other classes. It was not felt that this was a critical deficiency in the work of the study, but complete descriptions of the business types would have been more easily interpreted. The data in Table 2 represent only the number of respondents that were contacted by the staff and no inference should be drawn as to the number and types of businesses in the study area.

Many of the diversified businesses could have been classified in more than one category, but it was decided to represent each business only by its major product or service.

Table 2

BUSINESS CLASSIFICATIONS IN RESPONDENT POPULATION

	Number	Percent of total population
Manufacturing		
Lumber and wood products	13	5.8
Fabricated metal products	11	5.0
Machine Products and machine manufacture	8	3.5
Food and kindred	8	3.5
Electrical products	5	2.3
Printing and publishing	4	1.9
Leather products	4	1.9
Miscellaneous	3	1.4
Rubber products	2	0.9
Textiles	2	0.9
Chemical and plastics	2	0.9
Primary metal products	2	0.9
Paper products	1	0.5
Sub-total	65	29.4
Non-Manufacturing		
Service and other	122	55.2
Commercial and utilities	12	5.4
Farm	10	4.5
Construction	6	2.7
Real Estate	3	1.4
Trades	2	0.9
Finance and insurance	1	0.5
Sub-total	156	70.6
TOTAL	221	100.0

CHAPTER II

PRESENTATION OF DATA

NUMBER OF PERSONNEL IN DIRECT CONCERN OF THE STUDY

Each respondent was asked to specify the total employment in that business. Total employment included personnel in all phases of management, office and production work.

Respondents were then asked to indicate how many persons were employed in all jobs that fit the following criteria:

> "Jobs for which satisfactory work requires no less than two weeks, yet no more than two years of occupational training." Table 3.

Table 3

NUMBER OF EMPLOYEES CONCERNED AND NOT CONCERNED WITH STUDY

	Number	Percent
Employees of concern to the Study	11,872	55.6
Employees not of concern to the Study	9,607	44.4
TOTAL	21,479	100.0

The total number of employees in all jobs with all businesses interviewed was 21,479 and 55.6% of these personnel fit the criteria for concern with the study. It was felt that data for 11,872 employees representing a total of approximately 41,000 employees (New Hampshire Department of Employment Security), in all businesses in the study area, was an adequate sampling from which conclusions and recommendations could be made.

REASONS FOR HIRING PERSONNEL

To assist in establishing vocational-technical curricula implications, the respondents were asked to categorize their reasons for hiring employees. Table 4.

Table 4

REASONS FOR HIRING PERSONNEL

Reason	Positive Responses	Percent of total Responses
Expansion of business	125	43.4
Replacement of former personnel	162	56.6
TOTAL	287	100.0

Sixty-six businesses indicated that hiring in that business was done for both of the stated reasons. To incorporate this into the data, all responses indicating "expansion" were counted and all responses indicating "replacement" were counted. Their total was 287. The 125 "expansion" responses and the 162 "replacement" responses were calculated as portions of the 287 total.

Employee replacement accounted for 13.2% more hiring than did business expansion in the study area. The rate of turnover for waitresses, salesmen, and production workers was considered to be especially high. Since these jobs accounted for a sizable portion of the labor force, their influence was reflected in the data.

It was implied by the respondents that there existed a large, relatively unskilled, labor pool for these reasons:

1. Workers hold jobs until they become dissatisfied with pay, working conditions, the work, lack of advancement, lack of opportunity for training, or until they simply have enough money to cease working for an indefinite period.

2. Unskilled workers have not been prepared for any specialized manual task, nor have they been oriented to a general type of skill training that would enable them to secure entry occupations with a possibility for advancement in a variety of jobs.

The single most important implication gained from respondents was that the needs of the labor force in the study area were changing and that vocational-technical education would be forced to change also.

ADEQUACY OF PRESENT PROGRAMS OF OCCUPATIONAL EDUCATION

A major factor to be determined by the study was the adequacy of current programs and curricula in Vocational-Technical Education as seen by business and industry. The term adequate was qualified by the following criteria:

1. Were programs and curricula supplying students with skills enabling them to acquire the entry jobs they sought?
2. Were programs and curricula providing adequate experience for students to immediately perform entry jobs to the satisfaction of the employer?
3. Were programs and curricula providing skills demanded by business and industry in the study area, and was an effort being made to provide specialized training to meet the needs of business and of the students?

To answer this question respondents were asked if the present Vocational-Technical Education Programs were adequate for their purposes. Table 5.

Table 5

ADEQUACY OF PRESENT PROGRAMS OF OCCUPATIONAL EDUCATION

Response	Number	Percent
Not adequate	122	55.2
Adequate	72	32.5
Don't know	27	12.3
TOTAL	221	100.0

The respondents who answered "don't know" appeared to be either not aware of curricula availability or curricula adequacy.

There also existed an inconsistency that was commented upon by 11 respondents. These were mostly medium-sized businesses that employed from 100 to 1,000 personnel in the same areas as were businesses employing from 1,000 to 7,000 personnel. The larger businesses have had little difficulty in acquiring labor, since their products were highly in demand and payment for workers was above the average for the area. It appeared, from their responses, that the small and still growing industries could not afford to pay top wages, nor could they afford to fully train unskilled personnel. These businesses have been forced to settle for many personnel with less than adequate skills, or for a minimum of moderately qualified personnel. This situation caused seven respondents (who simply did not care about the adequacy of present programs) to offer a plea for "warm bodies," trained or untrained.

There was also implied a general sufficiency in skilled trade education and a lesser demand for these persons, as compared to the demand for the semi-skilled and unskilled, for whom there were few training programs.

JOBS THAT HAVE BEEN DIFFICULT OR IMPOSSIBLE TO FILL

To specify what were the needs for curricula emphasis in Vocational-Technical Education, respondents were asked to state the jobs they had found most difficult to fill with qualified personnel during the past two years. Table 6.

Table 6

JOBS WHICH HAVE BEEN DIFFICULT OR IMPOSSIBLE TO FILL
(July 1, 1966 - June 30, 1968)

Job	Training Available*	Personnel Needed
1. Electronic technician	Yes	153
2. Machinist	Yes	128
3. Draftsman	Yes	109
4. Production machine mechanic	No	98
5. Mechanic, auto body	Yes	70
6. Production and assembly worker	No	60
7. Supervisory personnel	No	56
8. Welder	Yes	55
9. Secretary and clerk	Yes	45
10. Mechanic, automotive	Yes	45
11. Key punch operator	Partial	42
12. Salesman	No	38
13. Carpenter - cabinet maker	No	38
14. Plasterer - lather	No	30
15. Cook, short order	Partial	27
16. Driver - salesman	No	20
17. Sheet metal worker	Yes	14
18. Farm hand	Partial	10
19. Model maker, foundry	No	8
20. Electrician	Yes	8
21. Slitter and shear operator	No	8
22. Heating, refrigeration, cooling technician	Partial	7
23. Bookkeeper	Yes	6
24. Lineman, public utilities	No	5
25. Mason	No	4
26. Parts Manager	No	4
27. Heavy equipment operator	No	3
28. Bench molder, foundry	No	3
TOTAL		1,094

* Yes = Training for a job offered in 20-mile proximity to study area.
Partial = Training partially offered in 20-mile proximity to study area.
No = Training not available in 20-mile proximity to study area.

One percent of the total number of personnel needed during the past two years was found to be 11. For jobs that required less than 11 personnel and for job areas in which full or partial training is offered no conclusions and recommendations are stated or implied.

To determine the availability of training for the jobs, high schools in the study area were consulted, as was the Division of Vocational-Technical Education.

A limitation imposed upon businesses in the study area was the lack of people who could be trained. It was not possible to define this limitation in the total figure for personnel needed, yet the staff felt it accounted for some of the deficiency.

Persons possessing the skills which were a product of the more "established" curricula (i.e., electrician, technician, machinist, draftsman) were found to have been most in demand, but the group which was fourth in demand, "production machine mechanics," was a recently specialized field. No training is currently offered for such a job.

Of a similar nature was training for assembly line or production work. Some respondents stated that a general orientation for persons in this type of labor would be beneficial if it included training in mass production techniques, the responsibilities and privileges of employees, and practice in the field of interpersonal relations with other workers and with management.

One of the constantly recurring areas of concern in many businesses was that of supervisory personnel. In the study area there was no training devoted to the daily supervision of production and personnel. Personnel generally work up through the ranks of businesses and are appointed to supervisory positions with virtually no experience in leadership. The skills described by the respondents that are expected of supervisory personnel define the need for curricula incorporating the skills of management at the production level in industry.

Sales was the area most often stated as needing trained personnel. There was found to be definite need for persons devoted to the art and science of selling products and services.

Industrial Arts Education in the study area makes an effort to provide some introductory carpentry skills to interested students. There is a growing demand for new homes in the study area and the demand has created an equally intense need for qualified carpenters who have necessary skills to build a house. In addition to this, there is a need for persons who are capable of adding to, or remodeling existing structures. It was found there exist no facilities for teaching the skills of carpentry within 50 miles of the study area.

In association with salesmen, qualified truck drivers who have the ability to sell a delivered product were needed. These persons have the responsibility of managing a regular delivery route as well as increasing sales.

JOBS EXPECTED TO BE FILLED DURING THE NEXT TWO YEARS

To anticipate future needs for curricula emphasis, respondents were asked to list the positions for which they expected to be hiring the most personnel during the next two years. Most respondents gave what they considered conservative estimates of the personnel expected. Those respondents who could not accurately estimate a figure were asked to suggest a minimum number. Table 7.

The production line and assembly jobs were those which will place the greatest demand on the labor force during the next two years. They included product manufacturing in a large variety of businesses. Respondents found it difficult to specify exactly what personnel should be taught to best prepare them for production and assembly work. An explanation of these jobs appears in the section entitled "Job Descriptions."

Several respondents in the food service industry expressed their concern for future hiring of qualified personnel in this public relations

Table 7

JOBS EXPECTED TO BE FILLED DURING THE NEXT TWO YEARS

	Job	Training Available*	Personnel to be hired
1.	Production and assembly worker	No	453
2.	Secretary and clerk	Yes	251
3.	Machinist	Yes	246
4.	Waitress, hostess, receptionist	No	197
5.	Draftsman - design draftsman	Partial	148
6.	Welder	Yes	117
7.	Key Punch operator	Partial	104
8.	Electronic technician	Yes	102
9.	Production machine mechanic	No	77
10.	Sales management	No	69
11.	Mechanic, automotive	Yes	54
12.	Cook, short order	No	43
13.	Carpenter - cabinet maker	No	42
14.	Supervisory personnel	No	27
15.	Driver - salesman	No	27
16.	Hairdresser	Yes	26
17.	Mechanic, auto body	Yes	26
18.	Food service helper	Partial	24
19.	Electrician	Yes	17
20.	Appliance serviceman	Partial	15
21.	Maintenance mechanic	Yes	15
22.	Heavy equipment operator	No	7
23.	Mason	No	6
24.	Grocery helper	No	6
	TOTAL		2,098

* Yes = Training for a job offered in 20-mile proximity to study area.
Partial = Training partially offered in 20-mile proximity to study area.
No = Training not available in 20-mile proximity to study area.

The total number of personnel to be hired was 2,098. One percent of this number is 21. No conclusions nor recommendations are made for jobs needing less than 21 personnel or for which training is partially or fully offered.

field that is steadily growing in the study area. Positions included not only food preparation and serving, but customer relations and management as well.

The specific training of key punch operators and orientation to computer programming was not formally offered in the study area. Many respondents indicated to the staff that such training was of a necessity if education was to be truly useful in a geographical area that is increasingly dependent upon computer operation and technology. It would seem that Vocation-Technical Education has the responsibility of providing training equal in quality for interested persons throughout the study area.

In addition to current needs (Table 6) for salesmen and sales managers, the anticipated need for persons in this job title was nearly double (Table 7). Just as qualified production workers were promoted to supervisory positions, so were qualified salesmen advanced to positions of greater responsibility. Sales personnel with the necessary skills for advancement within the job title will be widely needed in the near future in the study area.

For the driver-sales category and the carpenter-cabinet maker category, future needs will be 30% and 10% higher, respectively. There was a clear indication here for emphasis in the two areas.

There was observed a tendency for advancement of supervisory personnel within the company. The 50% decrease in the anticipated need for supervisory personnel (Table 7) below the past needs (Table 6) represented this tendency. However, the need for training existed because of the number of respondents who continually depended upon on-the-job training for competency in management.

PRESENT SECONDARY SCHOOL CURRICULUM OFFERINGS IN STUDY AREA

The Division of Vocational-Technical Education and local high schools were asked to supply the enrollment figures in their vocational and technical courses and curricula. This information was collected to determine if the numbers of persons being trained for positions corresponds to the needs as presented in Tables 6 and 7. Table 8 and Table 9.

Table 8

SECONDARY SCHOOL PROGRAM ENROLLMENTS BY SCHOOL 1968-69

			School			
Program	Derry	Hollis	Hudson	Hashua*	Salem	Total
1. Secretary-Clerical	240	50	415		574	1,279
2. Home Economics		23	494			517
3. Electric-Electronics	47		65		138	250
4. Drafting	41	18	64		104	227
5. Woodworking	62		118			180
6. Machine Shop			78		79	157
7. Industrial Arts	10	36			61	107
8. Vocational Agriculture	41		41			82
9. Graphic Arts			33		30	63
10. Sales & Merchandising	41					41

* Not available at time of printing.

The secretarial-clerical training programs contain the bulk of vocational-technical students. It was found that the most popular areas of training chosen by students were the areas which were less emphasized by the respondents. There was found only small enrollment in food service training and in maintenance mechanics, as compared to the enrollments in the electrical and mechanical programs.

This situation would seem to indicate that new, or up-dated, curricula are necessary to attract vocationally oriented students in these other areas of vocational-technical education.

Table 9

POST-SECONDARY ENROLLMENT IN VOCATIONAL-TECHNICAL EDUCATION CURRICULA 1967-68

Curriculum	1967-68 enrollment	1968 Graduates
1. *electricity and electronics	393	43
2. *mechanical drafting	140	29
3. *machine shop practice	125	33
4. *data processing	115	30
5. automotive mechanics	113	40
6. apprenticeship programs	79	
carpentry (19)		
electronics (21)		
ironwork (18)		
plumbing (21)		
7. mechanical technology	77	27
8. mathematics	76	0
9. forest technology	61	20
10. culinary arts and food service	54	15
11. practical nursing	51	30
12. *heating, refrigeration and air conditioning technology	46	14
13. *welding	42	33
14. plant science	40	27
15. animal science	36	11
16. maintenance mechanics	34	14
17. physics	29	0
18. soil and water technology	19	6
19. accounting	17	0
20. commerce technology	17	9
21. metallurgy	15	0
22. blue-print reading	6	0
TOTAL	1,385	331

* day-school plus evening class enrollment

EDUCATIONAL PROGRAMS THAT COULD BE PROVIDED TO BENEFIT STUDY AREA

A major purpose of this study was to determine industry's feelings relative to programs in the study area that should be added or modified by Vocational-Technical Education. In all cases, programs suggested were those for which respondents realized a current need. Respondents were asked only to suggest programs or courses they would consider beneficial. Table 10.

A further suggestion of the need for attention to salesmanship training was the fact that 22 respondents considered such training vital. As depicted in Table 8, no such specialized training exists as a major curriculum in the study area, yet 10 percent of all respondents considered it essential.

Though customer service and relations seemed to be a nebulous area of training, partial descriptions of the skills implied may be found in the data for the following jobs (refer to section on "Job Descriptions"): Hostess-waitress-receptionist; salesman; supervisory personnel; and cashier. Respondents tended to place much emphasis on both sales and customer service and relations since these were areas that greatly affect profit and profit potential in business and industry.

Spelling and penmanship were not suggested as a curricula, but the two skills were considered critical in clerical and sales work. As stated by the respondents, there is a tendency in Vocational-Technical Education to accentuate the academics of curricula and overlook the very elementary skills for job entry. Spelling and penmanship proficiency training were strongly suggested for inclusion in several secondary and post secondary curricula, if these curricula are to be of optimum benefit to students preparing for jobs.

Table 10

EDUCATIONAL PROGRAMS THAT WOULD BENEFIT STUDY AREA

Curriculum Area	Currently Available*	Repetitions
1. Professionalized salesmanship	No	22
2. Customer service and relations	No	21
3. Carpentry and cabinet making	No	15
4. Mechanics, automotive	Yes	13
5. Spelling and penmanship	No	10
6. Practical electricity and electronics	Partial	9
7. Heating, refrigeration, cooling	Partial	8
8. Secretarial and clerical	Yes	6
9. General business practice	Yes	6
10. Practical shop mathematics (arithmetic)	No	6
11. Cooking, short order	Partial	6
12. The economy of profit and loss as it relates to the production worker, and an introduction to the types of business in the area	No	6
13. Small engine, two cycle, motor cycle, marine engine, snow-mobile service	Partial	5
14. Welding for certification	Partial	5
15. Supervisory skill training	No	5
16. O-J-T for waitresses	No	5
17. Chemical, rubber, plastics technician	No	5
18. Foundry practice	No	5
19. Key punch operation and data processing	Partial	4
20. Food service technology	Partial	3
21. Merchandising and advertising psychology	No	3
22. Drafting - design drafting, and machinist training for draftsmen	Partial	3
23. General shop practice	Yes	3
24. Plumbing	No	2
25. Farm equipment service	No	2
26. Radio and communication technology	Partial	2
27. Tannery practice	No	2
28. Responsibility and leadership	Partial	2
29. Cost estimating	No	2
30. Printing	Partial	2
31. Mechanics, auto body	Yes	2
32. Mechanics, carpet	No	2
33. Hairdressing	Yes	2
34. Upholstering	No	2
35. Plant propagation	Yes	2
36. Metallurgy	Partial	2
37. Reading and drawing of electrical circuits	Partial	2
TOTAL		210

* Yes = Training for a job offered in 20-mile proximity to study area.
Partial = Training partially offered in 20-mile proximity to study area.
No = Training not available in 20-mile proximity to study area.

The cut-off point used was one percent of all 210 repetitive responses. No conclusions nor recommendations are stated for suggested programs and curricula that were not repeated at least twice, or that are partially or fully offered.

Practical and shop mathematics (arithmetic) was an area suggested to better equip persons in all curricula with the elements of addition, subtraction, multiplication and division. There was widespread need for persons who could perform the skills with speed and accuracy.

Several respondents did not consider the training of supervisory personnel feasible. They felt such training should be tailored to each business. These respondents felt that advancement within the business was most effective in terms of supervision at the production level and voiced denial that some supervisory skills were generalizable for a variety of such positions. However, the majority of respondents contended that supervisory training would be of definite influence in the effective supervision of personnel.

The number of restaurants in the study area has increased considerably during the past several years and has created a demand for qualified waitresses. Respondents were generally quick to point out that there was very little professionalism among waitresses and hostesses. Brief, company sponsored, training programs account for most training but have been unable to keep pace with the need for greater sophistication in personality and service in as many jobs. Five respondents found such difficulty in locating waitresses with entry job qualifications that they suggested on-the-job training programs for women and girls.

There were five industries in the study area that felt some type of technician's training should be made available in the fields of chemistry, rubber and plastics. They expressed concern that few persons are given experience in practical laboratory work. They chose to emphasize the need for creative use of raw materials as well as proficiency with equipment in industrial laboratories. The respondents were not seeking personnel who could provide all of the answers in product research, but who could at least supply some experience in the operation of that research.

Though many of the skills in foundry work were found to be highly specialized, it was chosen to include "general foundry practice" as a suggested curriculum. This would include familiarizing students with the activity of foundry work, the advantages and disadvantages and specialized training in foundry jobs of interest to particular groups of students. Respondents felt that if students could be given such training in association with Vocational-Technical Education curricula, the benefit to the foundry would be two-fold:

1. Foundries would be provided with persons who knew that the work they would be performing was difficult.
2. Newly hired personnel would be familiar with the jobs done in a foundry in a business where on-the-job training for skilled jobs is expensive.

Production and assembly personnel will be those hired most frequently during the next two years. Respondents frequently suggested that for such persons there should be curricula which could provide them with a survey of the job opportunities in the area. In addition, education in the economics of profit and loss, as it relates to job performance, was suggested. Personal relations with one's fellow workers and with management was also suggested as important.

Three respondents requested curricula emphasis in merchandising and and advertising psychology for persons in the sales and service occupations. Merchandising was described as making the product or service more attractive to the customer and encouraging sales through association with the customer. Such training was suggested for salesmen, but was also mentioned for grocery help and other retail personnel.

RELATIVE IMPORTANCE OF TRAINING IN PERSONALITY AND PERSONAL DEVELOPMENT

Respondents were asked to indicate the importance of personal employee characteristics. They were presented a list of seven such areas and asked to rate them: 1 = very importnat; 2 = somewhat important;

3 = unimportant. Many respondents chose to separate "production workers" from "non-production workers." Table 11.

Table 11

RELATIVE IMPORTANCE OF TRAINING IN PERSONALITY & PERSONAL DEVELOPMENT

Training	Production Personnel	Non-Production Personnel	Total Personnel
	Mean Importance*	Mean Importance*	Over-All Importance**
Efficiency	1.2	1.2	1.10
Courtesy	1.2	1.2	1.21
Conversation	1.6	1.4	1.37
Manners	1.6	1.3	1.43
Neatness	1.6	1.4	1.44
Appearance	1.7	1.3	1.51
Self-expression	1.7	1.4	1.51

* Mean importance equals numerical total of 1, 2, and 3 values assigned to area divided by number of responses for that area. There were 93 responses for production personnel and 140 for non-production personnel.

** Overall importance equal to total of all 1, 2, and 3 values divided by 233.

All of the areas mentioned were considered important by the respondents, but especially critical were efficient performance of the job and courtesy on the job.

The overall importance of each area was indicative of a renewed emphasis in service to the customer and interpersonal relations. It was felt that when the income of a business depends upon the courtesy, the conversation, the manners or the efficiency of its employees towards the customer, education should help provide such training.

SUGGESTED PERSONALITY OR PERSONAL DEVELOPMENT TRAINING

Each respondent was asked to suggest any other areas or personality and personal development that they considered important. The responses were to be "skill" areas or traits that the respondent personally felt valuable in that business. Table 12.

Table 12

SUGGESTED PERSONALITY & PERSONAL DEVELOPMENT TRAINING

Area	Repetitions	Percent of Total Respondents Repeating
1. Pride and enthusiasm in work	19	8.5
2. Pleasing personality and compatibility	12	5.4
3. Ambition, responsibility and honesty	12	5.4
4. Customer service and relations	8	3.6
5. Punctuality and attendance at work	8	3.6
6. Loyalty to employer	2	0.9
7. Foresight	2	0.9
8. Versatility	2	0.9
9. Patience	2	0.9

Among the traits most sought by employers regardless of the job performed, was pride and enthusiasm in their work. Explicitly stated by 19 respondents was that if employees were encouraged to have greater enthusiasm in their work they could possibly find more enjoyment in the performance of their work. As a result of this enthusiasm, their remuneration for effective work would be greater. In the occupations for which customer service and relations are important, a pleasing and congenial personality were considered critical.

Ambition, responsibility, and honesty have found little emphasis in educational curricula, though they were considered as very intangible subject matter, but very tangible work traits. In terms of personal training, respondents felt that these areas should be offered to help students understand the employee's importance to the employer. Students could be further acquainted with the necessity for acquiring these traits if they desire success and satisfaction in their work. It was stated by many respondents that employee ambition and willingness to assume responsibility were decreasing and therefore contributing to the problem of hiring qualified personnel.

Customer service and relations have been mentioned in other portions of the data, yet it should be realized that 3.6 percent of all respondents mentioned such training as necessary for effective job performance. Included in this area were many of the skills required of the waitress-hostess, receptionist, salesman and supervisory personnel groups. Such skills were summarized as "the provision of a pleasant atmosphere in which the customer may conduct his business with persons who are genuinely interested in serving him."

Punctuality and attendance on the job were critical to another 3.6 percent of the respondents. This area and the area of ambition-responsibility-honesty seemed to bear a direct relationship, since both areas mentioned were of an intangible nature, yet important to the successful business. Respondents emphasized the necessity for employee awareness of the importance for such individual characteristics, if satisfactory relations between labor and management were to prevail.

WILLINGNESS OF RESPONDENTS TO HELP TRAIN STUDENTS

It was felt inadequate for respondents to suggest extensive training modifications with no further indication of their interest in

Vocational-Technical Education. Data was obtained that would determine the willingness of the respondents to help provide some of the training they suggested. Respondents were presented the following list of alternatives in which they could participate. Table 13.

Table 13

WILLINGNESS OF RESPONDENTS TO HELP - PROVIDE TRAINING

Assistance Provided	Number of Respondents	Percent of Total Respondents
1. Willing to have students visit and observe the operation of the business	150	68
2. Willing to employ interested students on a part-time basis	125	57
3. Willing to periodically release personnel to serve as curricula and course consultants or teachers in local schools	95	43
4. Willing to provide tuition for employees to attend institutions, etc., that would be of benefit to the company	95	43
5. Willing to have students attend orientation sessions with staff of that business participating	90	41
6. Willing to hold in-house training sessions with their own personnel and local educators participating	90	41
7. Willing to pay a portion of a teacher's salary to help provide a class that would be of benefit to the company	64	29
8. Willing to loan equipment to local institutions for instructional purposes	55	24

Sixty-eight percent of all respondents expressed their willingness to allow students to observe and discuss the operation of their business with them. Many respondents stated that they currently participated in such programs and that they would continue to intensify such procedures to acquaint students with current trends in business and industry.

The respondents who indicated willingness to employ interested students for on-the-job training did so with some reluctance. Such activity is costly since they are paying for the services of untrained personnel. However, 57 percent of the 221 respondents stated they would cooperate in this procedure on at least a limited basis.

Less than half of the respondents were willing to serve in consultation capacities with local educators, but the 95 respondents who indicated positively were enthusiastic and generally said they would provide advisory assistance in any manner expected of them. A lack of time served as the limitation for most of the respondents replying negatively.

A great many of the respondents stated that they already provided programs for the continuing education of their employees. Some indicated that it was possible for employees to complete both associate and baccalaureate degrees while under their employ. Negative answers were often followed by the reason that the size of the business would not permit investment in education.

Respondents were asked if personnel in the business would be willing to hold periodic, extensive, conferences with students for the purpose of fully acquainting them with the workings of that business. Ninety respondents indicated that they would provide such an opportunity for interested students. Ninety respondents indicated they would be willing to help provide training sessions in their plant facilities for students wishing to acquaint themselves with that type of business.

Respondents were informed that the New Hampshire State Department of Education will pay one-half of a teacher's salary (up to $3.00/hr.)

for the provision of a course when the student interest in an area merits the course offering. They were then asked if they would be willing to pay part, or all, of the rest of the teacher's salary. Only 29 percent of all respondents expressed willingness to provide such monies.

The training procedure for which respondents said they would find participation most difficult was the loaning of equipment to local institutions. In most businesses, large size or expensive equipment was considered prohibitive to facilitate loaning. In addition, the larger equipment was continually in use. The loaning of small equipment or raw materials was considered feasible by many businesses.

JOB DESCRIPTIONS CONSTRUCTED FROM STUDY DATA

To gather information specifying what skills are necessary for satisfactory job performance, respondents were asked to supply the information for each job described. For each job title is listed specific information compiled from all respondents employing persons in that job.

The following information represents 6,775 employees within the study area. Item "e" of the job descriptions (types of training and number of times repeated by respondent) is coded in the following manner. The first figure printed in each hyphenated set of figures represents one of the training methods coded below:

1 = Apprenticeship
2 = On-the-job training
3 = Company sponsored institute
4 = In-house class
5 = Vocational Institute
6 = Adult Education
7 = Man Power
8 = Departmental Training
9 = High School
10 = Correspondence
11 = No Organized Training
12 = Other

The second figure represents the number of respondents using this type of training for the given job.

For example, in job 1 (clerk) item "e" is listed as: 1-1, 2-11, 3-1, 4-1, 6-1. This means that apprenticeship training was used by one company; O-J-T was used by 11 companies; company sponsored institutes was used by one company; in-house class was used by one company; and adult education classes were used by one company.

Dictionary of Occupational Titles
Number 209.388

1. Job: CLERK

a) Number of persons employed in this job who were hired during the past two years	1056
b) Was the previous experience or training of the person hired for this job adequate?	YES: 7 respondents NO: 7 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 7 respondents NO: 7 respondents
d) How long is the training period for this job?	RANGE: 2-50 wks. MEAN: 13 wks.
e) Types of training and number of times repeated by different respondents	1-1 2-11 3-1 4-1 6-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

typing (6)
receptionist duties (3)
accounting (2)
inventory control (2)
filing (1)
bookkeeping (4)
meeting people (3)
knowledge of business (2)
efficient manner (2)
salesmanship (1)
mathematics (4)
shorthand (2)
telephone use (2)
payroll makeup (2)
merchandising (1)
write legibly
making change
compatibility
computer use
general office procedure
calculator operation
pricing

Dictionary of Occupational Titles
Number 609.885

2. Job: PRODUCTION AND ASSEMBLY WORKER

a) Number of persons employed in this job who were hired during the past two years	816
b) Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO: 1 respondent
d) How long is the training period for this job?	RANGE: 2-24 wks. MEAN: 9 wks.
e) Types of training and number of times repeated by different respondents	2-3 3-1 4-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- assembly of parts (1)
- press break operation (1)
- soldering (1)
- dexterity (1)
- welding: heavy seams (1)
- handling fine parts (1)
- welding: spot (1)
- inventory control
- youth
- fastening methods
- tapping threads
- bearing adjustment
- encapsulation of electronic components
- ceramic coating
- use of pneumatic tools
- spray painting
- pride in workmanship
- torque tolerances for fittings and fixtures
- use of shims
- pipe fitting: grease, water, oil
- brazing
- plasma spray coating
- new products construction
- record keeping
- basic electronics
- alignment of parts
- punching-drilling
- attention to wearing surfaces
- handle small parts
- gold fusion joints
- TIG welding
- tape operated machinery

Dictionary of Occupational Titles
Numbers 710.281
559.782

3. Job: TECHNICIAN, ELECTRONICS AND CHEMICAL

a) Number of persons employed in this job who were hired during the past two years	644
b) Was the previous experience or training of the person hired for this job adequate?	YES: 2 respondents NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 3 respondents NO: 1 respondent
d) How long is the training period for this job?	RANGE: 2-50 wks. MEAN: 14 wks.
e) Types of training and number of times repeated by different respondents	2-5 3-2 4-1 5-1 6-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

basic electronics (2)
chemistry (1)
soldering (1)
laboratory procedures (1)
associate degree or equivalent
operation of drill press and hand tools
assembly procedures
chrome metal casting
ability to cope with new ideas
jig use
production techniques
responsibility
template use
mechanical aptitude

Dictionary of Occupational Titles
Number n/a

4. Job: HOSTESS - WAITRESS - RECEPTIONIST

a) Number of persons employed in this job who were hired during the past two years	535
b) Was the previous experience or training of the person hired for this job adequate?	YES: 2 respondents NO: 8 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 9 respondents NO: 1 respondent
d) How long is the training period for this job?	RANGE: 2-24 wks. MEAN: 5 wks.
e) Types of training and number of times repeated by different respondents	2-9 3-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

customer service & relations (9)
how to set a table (5)
supervisory ability (3)
pleasant personality (8)
cashier duties: register, change, etc. (4)
neat and clean (6)
confectionary preparation (3)
courtesy (3)
ordering procedure (3)
salesmanship (1)
get orders filled promptly (1)
poise (1)
dependability (1)
patience w/customer (1)
ambition
efficiency
congeniality
literacy
bookkeeping
arithmetic
honesty
pricing
sandwich preparation
ability to give directions
telephone use and courtesy

Dictionary of Occupational Titles
Number 600.280

5. Job: MACHINIST

a) Number of persons employed in this job who were hired during the past two years	371
b) Was the previous experience or training of the person hired for this job adequate?	YES: 6 respondents NO: 2 responbents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 3 respondents
d) How long is the training period for this job?	RANGE: 4-200 wks. MEAN: 113 wks.
e) Types of training and number of times repeated by different respondents	1-2 2-12 5-2 6-1 9-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

general machine practice (7)
lathe operation (6)
set up and tear down (5)
blue print reading (4)
milling machine operation (3)
welding (arc & gas) (1)
grinding (1)
work w/very large equipment (1)
numerical control equipment and coordinate selection (1)
maintenance of machines (1)
general mechanical ability (1)
shop math (1)
equipment construction
sobriety
knowledge of product
shaper operation
electrical wiring skills
decimal-fraction conversion
tool making
cutting threads on lathe
attendance at work
painting
turret lathe operation
knowledge of working speeds for very large machines
plastics machiner
tolerance work
good attitude toward work
drill press operation
engine lathe operation
heat treating

Dictionary of Occupational Titles
Number n/a

6. Job: SALESMAN (ALL TYPES)

a) Number of persons employed in this job who were hired during the past two years	356
b) Was the previous experience or training of the person hired for this job adequate?	YES: 9 respondents NO: 8 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 6 respondents NO: 11 respondents
d) How long is the training period for this job?	RANGE: 2-200 wks. MEAN: 34 wks.
e) Types of training and number of times repeated by different respondents	2-2 3-4 8-2

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- pleasing personality (13)
- customer service & relations (7)
- neat, attractive appearance (6)
- experience in selling (5)
- selling techniques (4)
- knowledge of the business (4)
- appraisal of new & used products (4)
- knowledge of the product (2)
- business management (2)
- keep old customers and get new ones (2)
- mathematics (2)
- meeting & greeting people (2)
- understand the magnitude of customer's investment (2)
- advertising sales and techniques (2)
- measurement of square footage and yardage
- room planning and interior decoration
- inventory control (2)
- merchandising (1)
- solicitation by phone (1)
- public speaking and communication (1)
- patience (1)
- furniture manufacturing
- sales promotion
- knowledge of community
- selling most expensive product
- desire to make money
- knowledge of new products
- economy of motion
- selling oneself
- knowledge of consumer trends
- bookkeeping
- driver's license
- honesty
- "pressure" selling

Dictionary of Occupational Titles
Numbers 860.381
660.280

7. Job: CARPENTER - CABINET MAKER

a) Number of persons employed in this job who were hired during the past two years	307
b) Was the previous experience or training of the person hired for this job adequate?	YES: 4 respondents NO: 3 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 2 respondents
d) How long is the training period for this job?	RANGE: 2-200 wks. MEAN: 56 wks.
d) Types of training and number of times repeated by different respondents	1-2 2-15

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- hang doors (3)
- accurate measurement and holding tolerances (3)
- read blueprints (3)
- sanding (2)
- know structural parts of building and import (2)
- concrete use (2)
- planing (2)
- make parts to fit (2)
- how to build a house (2)
- know cuts and how to make them (2)
- set up machines (2)
- knowledge of woods (2)
- finish carpentry: moldings and casings (2)
- glueing and nailing (2)
- customer service & relations (2)
- installation of cabinets (2)
- operate router (1)
- build stairs (1)
- finishing (paint, stain) (1)
- square up a building (1)
- operate drill press (1)
- read a level (1)
- safety procedure
- knowledge of tools
- window setting & install
- sketching what will be built
- plastering
- remodeling
- dry wall
- supervisory ability
- production procedures
- plumbing
- general aptitude
- repairing of mistakes
- acoustical tile installation
- make cabinets
- run putty

Dictionary of Occupational Titles
Number n/a

8. Job: SUPERVISORY PERSONNEL (FOREMEN, MANAGERS, SUPERVISORS)

a) Number of persons employed in this job who were hired during the past two years	282
b) Was the previous experience or training of the person hired for this job adequate?	YES: 14 respondents NO: 37 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 32 respondents NO: 15 respondents
d) How long is the training period for this job?	RANGE: 2-200 wks. MEAN: 61 wks.
e) Types of training and number of times repeated by different respondents	2-37 3-5 9-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- knowledge of functions and jobs of business (34)
- business management (24)
- effective supervision of workers (21)
- daily bookkeeping (17)
- ability to meet people (15)
- ability to do all jobs one supervises (12)
- scheduling work and workers (12)
- customer service and relations (11)
- accounting: receivable, payable (10)
- salesmanship (7)
- hiring and firing help (5)
- ambition (4)
- leadership (3)
- advertising (3)
- mechanical ability (3)
- aggressiveness and charm (3)
- inventory control (2)
- responsibility (2)
- mathematics (2)
- care of grounds & buildings (2)
- credit procedures (2)
- product movement (2)
- work against quotas (1)
- typing (1)
- good appearance (1)
- trouble shooting (1)
- experience w/youth programs (1)
- general office practice (1)
- consumer financing (1)
- billing
- processing mail
- structure of organization
- public speaking
- familiarity w/automation equipment
- blue print reading
- compatibility
- legal training
- achievement on: Thurston Test, Hill and Lyles Test, Manson Test
- ability to generate enthusiasm
- operate cash register
- good penmanship
- training of personnel
- friendliness
- security procedures
- English skills
- telephone solicitation
- job classification and breakdown
- cost estimating
- clerical skills

Dictionary of Occupational Titles
Number 201.368

9. Job: SECRETARY AND OFFICE HELP

a) Number of persons employed in this job who were hired during the past two years	267
b) Was the previous experience or training of the person hired for this job adequate?	YES: 15 respondents NO: 9 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 19 respondents
d) How long is the training period for this job?	RANGE: 2-100 wks. MEAN: 15 wks.
e) Types of training and number of times repeated by different respondents	2-31 3-2 5-1 9-1

f) Skills that were considered cirtical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

typing (40)
bookkeeping (28)
shorthand (16)
general office procedure (15)
filing (15)
telephone use & courtesy (16)
knowledge of the business (7)
clerical skills (4)
pleasing personality (4)
cashier duties (4)
inventory control (4)
handling money (3)
use of adding machine (3)
receptionist duties (3)
mathematics (3)
preparation of bills (2)
salesmanship (2)
pleasing voice (2)
invoice preparation (2)
good appearance (1)
dependability & responsibility (1)
cashing checks
data processing
operate duplicating machines
decision making ability
advertising
cost estimating
switchboard operation
use of calculator
good handwriting
operate Burroughs systematic machine
sales analysis
accounting: receivable - payable

Dictionary of Occupational Titles
Number n/a

10. Job DRAFTSMAN AND DESIGN DRAFTSMAN

a) Number of persons employed in this job who were hired during the past two years	205
b) Was the previous experience or training of the person hired for this job adequate?	YES: 3 respondents NO: 4 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 3 respondents NO: 4 respondents
d) How long is the training period for this job?	RANGE: 24-200 wks. MEAN: 91 wks.
e) Types of training and number of times repeated by different respondents	2-5 3-1 5-3

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- general drafting skills (7)
- practical knowledge of machine skills and workshop practice (5)
- tool and machine design (4)
- knowledge of circuitry (2)
- graphics and art training (2)
- knowledge of hydraulics (1)
- assembly drawing (1)
- work w/out specifications (1)
- know what products can be purchased
- design very large machines
- welding symbols
- checking drawings
- electroforming knowledge
- algebra and trigonometry
- diversity
- neatness and meticulousness
- tolerance specification
- finish designations
- machine fabrication
- concept of pictures and composition
- technical school background
- geometrical positioning
- supervisory ability
- detail drawing (2)

Dictionary of Occupational Titles
Number 213.582

11. Job: KEY PUNCH OPERATOR AND SUPERVISOR

a) Number of persons employed in this job who were hired during the past two years	182
b) Was the previous experience or training of the person hired for this job adequate?	YES: 3 respondents NO: 1 respondent
c) Would you hire a person for this job whose experience or training was inadequate?	YES: NO: 4 respondents
d) How long is the training period for this job?	RANGE: 6-15 weeks MEAN: 12 wks.
e) Types of training and number of times repeated by different respondents	2-3 3-1 8-8

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

typing (40 words/min.) (1)
key punch operation
pleasing personality
program key punch and verifying machine
H. S. education
computer use
clerical skills
familiarity with IBM 360 computer
processing information
qualification for certification

Dictionary of Occupational Titles
Number 211.368

12. Job: CASHIER

a) Number of persons employed in this job who were hired during the past two years	178
b) Was the previous experience or training of the person hired for this job adequate?	YES: 3 respondents NO: 4 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 3 respondents
d) How long is the training period for this job?	RANGE: 2-24 wks. MEAN: 4 wks.
e) Types of training and number of times repeated by different respondents	2-9 10-2 11-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

make change (5)
operate cash register (4)
mathematics (3)
accounting procedures (3)
pleasing personality (2)
customer service & relations (2)
telephone use & courtesy (1)
honesty (1)
tolerance of people (1)
public relations
making bank deposits
typing
ambition
knowledge of company policy
cash flow sheet use
organize work
knowledge of loans
filing
bookkeeping
use of business machines

Dictionary of Occupational Titles
Numbers 821.381
822.381

13. Job: LINEMAN, PUBLIC UTILITIES

a) Number of persons employed in this job who were hired during the past two years	173
b) Was the previous experience or training of the person hired for this job adequate?	YES: NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO: 1 respondent
d) How long is the training period for this job?	RANGE: MEAN: 200 wks.
e) Types of training and number of times repeated by different respondents	2-2 3-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- enjoy outside work (1)
- no fear of heights (1)
- physics
- blue print reading
- string cable - set poles
- work w/15 kilovolt equipment
- spacial concepts in circuitry
- youth
- electrical symbols
- truck repair
- assembly of parts
- dexterity
- knowledge of circuitry
- operation of bucket truck
- tree cutting

Dictionary of Occupational Titles
Numbers 824.281
820.281

14. Job: ELECTRICIAN, PRIVATE AND PUBLIC UTILITIES

a) Number of persons employed in this job who were hired during the past two years	164
b) Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 3 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO: 2 respondents
d) How long is the training period for this job?	RANGE: 18-200 wks. MEAN: 103 wks.
e) Types of training and number of times repeated by different respondents	2-3 3-1 5-2 6-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- complete ability to do:
  - residential wiring (5)
  - commercial wiring (5)
  - industrial wiring (5)
- knowledge of transformers and re-closers (1)
- controls for automatic equipment (1)
- circuit breakers and gear
- 60 cycle equipment
- small appliance repair and service
- sophisticated circuitry
- regulators
- air brake disconnectors
- no errors
- knowledge of new application for electricity
- installation of testing equipment and repair equipment
- electric motor repair
- ambition
- knowledge of refrigeration

Dictionary of Occupational Titles
Number 812.884

15. Job: WELDER

a) Number of persons employed in this job who were hired during the past two years	160
b) Was the previous experience or training of the person hired for this job adequate?	YES: 3 respondents NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO: 3 respondents
d) How long is the training period for this job?	RANGE: 24-100 wks. MEAN: 46 wks.
e) Types of training and number of times repeated by different respondents	2-3 4-1 5-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

knowledge of types of steel (1)
heliarc welding (1)
arc welding (1)
parts assembly (1)
blue print reading (1)
welding of mild and high carbon steels (1)
welding of dirty, or rusty metal
cutting with torch
qualify for certification
stainless steel welding
tack weld to dimension
machinery repair
welding cast iron
mechanical ability
flat, verticle, up and down welding
short arc gun use
hard surfacing
carbon arc use
work with very heavy metal
knowledge of welding symbols

Dictionary of Occupational Titles
Number 313.381

16. Job: COOK (SHORT-ORDER)

a) Number of persons employed in this job who were hired during the past two years	104
b) Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 7 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 6 respondents NO: 2 respondents
d) How long is the training period for this job?	RANGE: 2-200 wks. MEAN: 22 wks.
e) Types of training and number of times repeated by different respondents	2-10 3-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- cooking procedure for various foods (6)
- plan well-rounded menus (2)
- supervisory ability (1)
- fryer use (1)
- grill use (1)
- cleaning kitchen (1)
- youth (1)
- broiler use (1)
- quantity preparation (1)
- utensil use
- food storage
- salad preparation
- steam table use
- baking
- reconstitution of foods
- product rotation
- sandwich preparation
- dependability
- speed & quality
- preparation of new foods
- radar cooking
- set up kitchen
- microwave cooking

Dictionary of Occupational Titles
Number 620.281

17. Job: MECHANIC AUTOMOTIVE

a) Number of persons employed in this job who were hired during the past two years — 76

b) Was the previous experience or training of the person hired for this job adequate?
YES: 7 respondents
NO: 6 respondents

c) Would you hire a person for this job whose experience or training was inadequate?
YES: 7 respondents
NO: 6 respondents

d) How long is the training period for this job?
RANGE: 2-200 wks.
MEAN: 49 wks.

e) Types of training and number of times repeated by different respondents — 1-1 2-11 3-5 4-1 6-1 7-

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

minor & major engine repairs (13)
repair small engines: marine, motorcycle, two-cycle (9)
trouble shooting (4)
front end repair (3)
reconditioning used cars (3)
transmission (3)
preparation of new cars (3)
air conditioning (3)
machinist skills (3)
lubrication (3)
hydraulics (3)
diesel engine repair
airbrake systems
farm machinery (2)
welding (1)
valve grinding
tool fitting
press operation
knowledge of parts
electronics
record keeping
remote control for boats
ability to learn from book
heavy duty truck mechanics
heavy equipment repair
body work
electrical systems

Dictionary of Occupational Titles
Number 292.358

18. Job: TRUCK DRIVER AND ROUTE SALESMAN

a) Number of persons employed in this job who were hired during the past two years	72
b) Was the previous experience or training of the person hired for this job adequate?	YES: 5 respondents NO: 3 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO: 7 respondents
d) How long is the training period for this job?	RANGE: 2-50 wks. MEAN: 9 wks.
e) Types of training and number of times repeated by different respondents	2-8

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- commercial license (9)
- good record of driving (5)
- customer service and relations (3)
- pass I.C.C. physical (3)
- merchandising (2)
- operate tractor-trailer (1)
- product handling (1)
- daily records (1)
- youth (1)
- ambition
- general aptitude
- literacy
- equipment maintenance

Dictionary of Occupational Titles
Number n/a

19. Job: PRODUCTION MACHINE MECHANIC

a) Number of persons employed in this job who were hired during the past two years	71
b) Was the previous experience or training of the person hired for this job adequate?	YES: NO: 3 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 3 respondents NO:
d) How long is the training period for this job?	RANGE: 24-150 wks. MEAN: 81 wks.
e) Types of training and number of times repeated by different respondents	1-1 2-2

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- understand the limitations of machines (3)
- know how to maintain the machines (3)
- knowledge of: electronics, pneumatics, hydraulics and mechanics (1)
- lubrication of machines (1)
- understand tolerances (1)
- know how to adjust the machine (1)
- use of pressing equipment
- fundamental wiring
- product transport systems
- knowledge of business
- circuit testing
- machine modification for efficiency
- trouble shotting & description
- mathematics
- hydraulics
- transitorized circuitry
- more on-the-job training
- air pressure and its effect
- understand timing devices
- soldering
- understand written instructions
- electrical terminology
- helical cutting machines
- simplification of complex mechanical principles
- building maintenance
- micrometer use
- circuitry
- modification of old equipment for new assembly techniques
- importance of temperature-humidity relationship to product
- power transmission
- interpretation of recording gauges
- electron beam cutting
- welding
- blueprint reading
- slitter operation
- know type of steel and hardness
- control valves
- more managerial response
- knowledge of synthetic materials

Dictionary of Occupational Titles
Number 290.468

20. Job: GROCERY HELP

a) Number of persons employed in this job who were hired during the past two years — 67

b) Was the previous experience or training of the person hired for this job adequate?
YES: 1 respondent
NO: 1 respondent

c) Would you hire a person for this job whose experience or training was inadequate?
YES: 1 respondent
NO: 1 respondent

d) How long is the training period for this job?
RANGE: 2-50 wks.
MEAN: 26 wks.

e) Types of training and number of times repeated by different respondents — 2-3

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

produce preparation and merchandising (2)
product life and storage techniques (2)
knowledge of quality produce and products
inventory control
neat appearance
friendliness

Dictionary of Occupational Titles
Number 952.782

21. Job: OPERATOR OF PUBLIC UTILITIES SUBSTATION

a) Number of persons employed in this job who were hired during the past two years — 66

b) Was the previous experience or training of the person hired for this job adequate?
YES: 1 respondent
NO: 1 respondent

c) Would you hire a person for this job whose experience or training was inadequate?
YES: 1 respondent
NO: 1 respondent

d) How long is the training period for this job?
RANGE: 12-200 wks.
MEAN: 106 wks.

e) Types of training and number of times repeated by different respondents — 2-2 3-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

basic electrician's skills (1)
responsibility for expensive equipment (1)
record keeping
knowledge of controls (1)
mechanical ability (1)
interpret recording gauges

Dictionary of Occupational Titles
Number 239.588

22. Job: METER READER

a) Number of persons employed in this job who were hired during the past two years	65
b) Was the previous experience or training of the person hired for this job adequate?	YES: NO: 1 respondent
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO:
d) How long is the training period for this job?	RANGE: MEAN: 2 wks.
e) Types of training and number of times repeated by different respondents	2-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- skills of arithmetic: addition, subtraction, multiplication and division
- bill collection
- business practice
- reading an electric meter
- customer service and relations

Dictionary of Occupational Titles
Number 723.884

23. Job: APPLIANCE REPAIRMAN

a) Number of persons employed in this job who were hired during the past two years	62
b) Was the previous experience or training of the person hired for this job adequate?	YES: NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO: 1 respondent
d) How long is the training period for this job?	RANGE: 12-150 wks. MEAN: 58 wks.
e) Types of training and number of times repeated by different respondents	2-3 3-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- electric motor repair (1)
- circuitry (1)
- radio & TV repair
- plumbing
- dryers, washers, stoves
- customer service and relations
- refrigeration
- trouble shooting
- antenna installatio

Dictionary of Occupational Titles
Number 638.281

24. Job: MAINTENANCE MECHANIC

a) Number of persons employed in this job who were hired during the past two years	63
b) Was the previous experience or training of the person hired for this job adequate?	YES: 3 respondents NO: 6 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 6 respondents NO: 3 respondents
d) How long is the training period for this job?	RANGE: 2-150 wks. MEAN: 35 wks.
e) Types of training and number of times repeated by different respondents	2-9 12-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- building management and maintenance (6)
- plumbing (4)
- electrical wiring (4)
- repair production machinery (2)
- roofing & painting (1)
- hydraulics (1)
- carpentry (1)
- grounds maintenance (1)
- use of electricity for heat
- drive truck (2)
- concrete work
- reliability
- welding
- supervisory experience
- knowledge of business
- inventory control
- plowing snow
- organization of safety programs
- youth
- refrigeration

Dictionary of Occupational Titles
Numbers 518.887
519.887

25. Job: FOUNDRY WORKER

a) Number of persons employed in this job who were hired during the past two years	54
b) Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 5 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO:
d) How long is the training period for this job?	RANGE: 24-200 wks. MEAN: 94 wks.
e) Types of training and number of times repeated by different respondents	1-4 2-3

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- polishing techniques (1)
- template use (1)
- buffing (1)
- filling a mold (1)
- machinist skills: tools, milling, lathe, etc. (1)
- knowledge of abrasives (1)
- steady nerves & patience (1)
- use of tools (knowledge) (1)
- repair of molds (1)
- blueprint reading (1)
- shaping and contouring product (1)
- pattern making (1)
- tool fitting (1)
- woodworking (1)
- sand casting
- drafting
- mathematics

Dictionary of Occupational Titles
Number 332.271

26. Job: HAIRDRESSER

a) Number of persons employed in this job who were hired during the past two years	42
b) Was the previous experience or training of the person hired for this job adequate?	YES: 4 respondents NO: 1 respondent
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO: 4 respondents
d) How long is the training period for this job?	RANGE: 2-100 wks. MEAN: 38 wks.
e) Types of training and number of times repeated by different respondents	2-2 4-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

cutting hair (5)
styling (3)
permanent waves (3)
washing & setting (3)
coloring (3)
manicures (2)
facials (1)
cleaning & styling wigs (1)
wig fitting (sewing) (1)
knowledge of new fashions
cleanliness
finger dexterity
physiology of the head

Dictionary of Occupational Titles
Numbers 409.883
421.883

27. Job: FARMER AND HELPER

a) Number of persons employed in this job who were hired during the past two years	41
b) Was the previous experience or training of the person hired for this job adequate?	YES: 2 respondents NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO: 3 respondents
d) How long is the training period for this job?	RANGE: 3-100 wks. MEAN: 36 wks.
e) Types of training and number of times repeated by different respondents	2-6

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- general management of farm animals (4)
- merchandising (3)
- milking, egghandling (2)
- haying, harvesting (2)
- equipment operation (2)
- recognition of diseases (1)
- medication principles and systems (1)
- soil types & fertilization (1)
- record keeping
- mathematics
- mechanics (1)
- business management (1)
- automation principles (1)
- purchasing supplies
- planting of crops
- plumbing
- ambition
- crops knowledge
- spraying treatments
- read milk scales
- woodlot management
- principles of carpentry
- electronics

Dictionary of Occupational Titles
Numbers 317.887
314.381
314.781

28. Job: FOOD SERVICE HELPER

a) Number of persons employed in this job who were hired during the past two years	34
b) Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 5 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 1 respondent
d) How long is the training period for this job?	RANGE: 2-24 wks. MEAN: 6 wks.
e) Types of training and number of times repeated by different respondents	2-6

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- customer service & relations (11)
- some cooking (grill, etc.) (11)
- salad preparation
- inventory control
- prepare beverages
- set up tables
- food storage & rotation
- cleaning of kitchen
- appearance
- mathematics
- attendance at work
- cleanliness
- ambition

Dictionary of Occupational Titles
Number 713.381

29. Job: OPTICAL INSTRUMENT WORKER

a) Number of persons employed in this job who were hired during the past two years	30
b) Was the previous experience or training of the person hired for this job adequate?	YES: 2 respondents NO:
c) Would you hire a person for this job whose experience or training was inadequate?	YES: NO:
d) How long is the training period for this job?	RANGE: 8-20 wks. MEAN: 14 wks.
e) Types of training and number of times repeated by different respondents	2-2

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- reading of lens meter
- lens shape selection
- typing
- mathematics
- use of tools
- record keeping
- knowledge of bifocals
- ability to concentrate
- insertion of lens into frame
- knowledge of basic curves
- polishing lenses

Dictionary of Occupational Titles
Number 210.388

30. Job: BOOKKEEPER

a) Number of persons employed in this job who were hired during the past two years	27
b) Was the previous experience or training of the person hired for this job adequate?	YES: 12 respondents NO: 3 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 3 respondents NO: 12 respondents
d) How long is the training period for this job?	RANGE: 3-100 wks. MEAN: 23 wks.
e) Types of training and number of times repeated by different respondents	1-1 2-13 10-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- bookkeeping (15)
- typing (11)
- general office procedure (5)
- accounting (4)
- operate bookkeeping machine (3)
- postage meter use (2)
- knowledge of the business (2)
- customer service and relations (1)
- telephone manner and use (1)
- posting accounts (1)
- tax returns and reports
- ordering
- shorthand
- invoice preparation
- balancing accounts payable, receivable
- knowledge of data processing
- filing
- price and cost slip records
- inventory control
- salesmanship

Dictionary of Occupational Titles
Number 299.381

31. Job: MECHANIC, CARPET

a) Number of persons employed in this job who were hired during the past two years	25
b) Was the previous experience or training of the person hired for this job adequate?	YES: NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO:
d) How long is the training period for this job?	RANGE: 50-150 wks. MEAN: 100 wks.
e) Types of training and number of times repeated by different respondents	1-2 2-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- aptitude and dexterity (1)
- heat setting of seams
- customer service and relations
- cleanliness
- carpeting stairways
- mechanical ability
- carpet stretching
- youth
- knowledge of carpet tools
- calculation of square footage and square yardage
- visual projection
- fabric knowledge
- ability to learn from experience
- pattern making
- cost estimating

Dictionary of Occupational Titles
Numbers 582.782
550.782

32. Job: TANNERY HELPER

a) Number of persons employed in this job who were hired during the past two years	18
b) Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 1 respondent
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO:
d) How long is the training period for this job?	RANGE: 3-50 wks. MEAN: 27 wks.
e) Types of training and number of times repeated by different respondents	2-1

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

removal of water from hide
machinist skills
youth
grading hides
ability to organize work
weight measurement
machinery care and operation
knowledge of chemicals, oils, dyes, temperatures
dexterity
knowledge of pH

Dictionary of Occupational Titles
Number 804.281

33. Job: SHEET METAL WORKER

a)	Number of persons employed in this job who were hired during the past two years	15
b)	Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 1 respondent
c)	Would you hire a person for this job whose experience or training was inadequate?	YES: 1 respondent NO: 1 respondent
d)	How long is the training period for this job?	RANGE: 12-100 wks. MEAN: 45 wks.
e)	Types of training and number of times repeated by different respondents	2-2

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- layout work and shapes
- bending principles
- work with stainless steel
- heliarc welding
- blueprint reading
- assembly of product
- knowledge of materials
- soldering
- punch operation
- aptitude
- installation of product
- work with heavy metals
- spot welding
- sheerer operation

Dictionary of Occupational Titles
Number 132.268

34. Job: NEWSPAPER WORKERS

a) Number of persons employed in this job who were hired during the past two years	14
b) Was the previous experience or training of the person hired for this job adequate?	YES: NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO:
d) How long is the training period for this job?	RANGE: 2-12 wks. MEAN: 7 wks.
e) Types of training and number of times repeated by different respondents	2-2

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

- English skills (1)
- speed typing (1)
- gather and write news
- writing creatively
- attention to detail
- writing of advertising
- more on-the-job training
- inquisitive
- principles of newspaper structure
- copy writing
- business practice
- tenacious

Dictionary of Occupational Titles
Numbers 316.781
316.884

35. Job: MEAT CUTTER

a) Number of persons employed in this job who were hired during the past two years	60
b) Was the previous experience or training of the person hired for this job adequate?	YES: 4 respondents NO: 2 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 1 respondent
d) How long is the training period for this job?	RANGE: 12-200 wks. MEAN: 80 wks.
e) Types of training and number of times repeated by different respondents	1-2 2-5

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

merchandising meat (5)
customer service & relations (1)
knowledge of cuts (1)
familiarity with warehouse
all general skill for breakdown to package (5)
sausage production
care of department
use of bandsaw
supervisory ability
poultry preparation
boning
weighing

Dictionary of Occupational Titles
Number 312.878

36. Job: BARTENDER

a) Number of persons employed in this job who were hired during the past two years	13
b) Was the previous experience or training of the person hired for this job adequate?	YES: 4 respondents NO: 6 respondents
c) Would you hire a person for this job whose experience or training was inadequate?	YES: 2 respondents NO: 8 respondents
d) How long is the training period for this job?	RANGE: 2-20 wks. MEAN: 8 wks.
e) Types of training and number of times repeated by different respondents	2-10

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

customer service & relations (7)
experience (8)
mix all kinds of drinks (5)

Dictionary of Occupational Titles
Number 637.884

37. Job: HEATING AND AIR CONDITIONING TECHNICIAN

a)	Number of persons employed in this job who were hired during the past two years	13
b)	Was the previous experience or training of the person hired for this job adequate?	YES: 1 respondent NO: 5 respondents
c)	Would you hire a person for this job whose experience or training was inadequate?	YES: 5 respondents NO: 1 respondents
d)	How long is the training period for this job?	RANGE: 3-100 3ks. MEAN: 40 wks.
e)	Types of training and number of times repeated by different respondents	1-1 2-7 3-1 4-1 5-1 6-

f) Skills that were considered critical for satisfactory performance of this job and the number of times that skill was repeated by different respondents:

electrical wiring and electricity (3)
plumbing (2)
general mechanical ability (2)
burner service (1)
installation and repair of controls (2)
installation of controls (1)
customer service and relations
electric motor servicing
more emphasis on oil burner service
carpentry skills
pleasing personality
physics
installation of: water lines, oil lines, baseboard heating
install and service air conditioners
new types of controls
trouble shooting
use of tools
honesty
hydraulics
drive truck
ambition
use of tools
chemistry
neatness

PERSONNEL NEEDS (AUGUST 1, 1968 - SEPTEMBER 1, 1968). IN NASHUA-MANCHESTER AREA

From the New Hampshire Department of Employment Security further data concerning worker shortages were obtained. These data were considered supplementary to that gathered in the study, but they do present further reference to the study area, and its employment characteristics. Table 14.

Table 14

SHORTAGES OF WORKERS IN NASHUA - MANCHESTER AREA BY OCCUPATIONS (AUG. 1 - SEPT. 1, 1968)*

Shortage of More Than 100 Personnel

- Supervisory Personnel
- Secretary-Stenographer
- Waiter-Waitress
- Nurse-Aid
- Stitcher (Boot and Shoe)
- Faller (Timber)

Shortages of 50-100 Personnel

- Clerk-Typist
- Sales Personnel
- Cook
- Kitchen Help
- Side Laster Cementer
- Painter, Construction
- Truck Driver
- Wax Molder (Jewelry)
- Mechanic (Automotive)
- Weaver, Textile
- Doffer, Textile
- Production & Assembly Workers (Electronics)
- Carpenter

* Quarterly Report, N. H. Dept. of Employment Security

It was found that there was considerable compatability among Tables 6, 7, and 12. Supervisory, clerical, sales and food service personnel occupied relatively high positions on the shortage list, as did such jobs in Tables 6 and 7.

SKILLS NEEDED FOR SIX OR MORE JOBS

The method chosen to indicate the importance of skills named by respondents was to "cluster" together all jobs for which a certain skill was required. It was felt that some indication for generalization of subject matter could prepare personnel for a variety of jobs or phases of such jobs, thus creating a more versatile employee. The results of this clustering follow:

Customer Service and Relations (19)

- Appliance repairman
- Bartender
- Bookkeeper
- Carpenter
- Cashier
- Electrician
- Food Service Helper
- Grocery helper
- Heating and air conditioning tech.
- Meatcutter
- Mechanic, auto body
- Mechanic, carpet
- Parts manager
- Printer
- Salesman
- Service advisor
- Supervisory personnel
- Truck driver
- Waitress-hostess-receptionist

Mechanical Aptitude (17)

- Electronics lab tech.
- Farm helper
- Heating & air con. tech.
- Lineman
- Machinist
- Maintenance mechanic
- Mechanic, automotive
- Printer
- Production machine mechanic
- Service advisor
- Sheet metal worker
- Sub-station operator
- Supervisory personnel
- Tannery help
- Truck driver
- Welder
- Well driller

Practical Arithmetic and Shop Mathematics (15)

- Bookkeeper
- Cashier
- Clerk
- Farm help
- Food service helper
- Foundry worker
- Machinist
- Mechanic, carpet
- Meter reader
- Optical instrument worker
- Production machine mechanic
- Salesman
- Secretarial
- Supervisory personnel
- Waitress-hostess-receptionist

Electrical Circuitry and Wiring (14)

- Appliance repairman
- Draftsman
- Electrician
- Farm helper
- Heating and air cond. tech.
- Machinist
- Maintenance mechanic
- Mechanic, carpet
- Mechanic, automotive
- Parts manager
- Production & assembly worker
- Production machine mechanic
- Sub-station operator
- Well driller

Inventory Control (12)

Bookkeeper
Buyer
Clerk
Farm helper
Food service helper
Grocery helper
Maintenance mechanic
Parts manager
Production & assembly worker
Salesman
Secretary
Supervisory personnel

Neatness (11)

Draftsman
Food service helper
Grocery helper
Hairdresser
Heating & air cond. tech.
Mechanic, carpet
Salesman
Secretary
Service advisor
Supervisory personnel
Waitress-hostess-receptionist

Supervisory Skills (11)

Carpenter
Cashier
Cook
Draftsman
Mechanic, auto body
Maintenance mechanic
Meatcutter
Parts manager
Service advisor
Supervisory personnel
Waitress-hostess-receptionist

Ambition (12)

Cashier
Cook
Farm helper
Food service helper
Heating & air. cond. tech.
Salesman
Service advisor
Supervisory personnel
Truck driver
Waitress-hostess-receptionist
Well driller

Knowledge of the Policies and Functions of the Business (11)

Bookkeeper
Cashier
Clerk
Machinist
Maintenance mechanic
Production machine mechanic
Salesman
Secretary
Service advisor
Supervisory personnel

Salesmanship (9)

Bookkeeper
Buyer
Clerk
Parts manager
Salesman
Service advisor
Secretary
Supervisory personnel
Waitress-hostess-receptionist

Record Keeping (9)

Farm helper
Mechanic, auto
Meter reader
Optical instrument worker
Prod. & assembly worker
Sub-station operator
Supervisory personnel
Truck driver

Blue-Print Reading (8)

Carpenter
Foundry worker
Lineman
Machinist
Production machine mechanic
Sheet metal worker
Supervisory personnel
Welder

Typing (8)

Bookkeeping
Cashier
Clerk
Key punch operator
Newspaper worker
Optical inst. worker
Secretary
Supervisory personnel

Responsibility and Dependability (8)

Cook
Lab. tech.
Maintenance mech.
Secretary
Service advisor
Sub-station operator
Supervisory personnel
Waitress-hostess-receptionist

Appraisal of Product or Service Value (8)

Buyer
Mechanic, carpet
Mechanic, auto body
Mechanic, automotive
Printer
Secretary
Service advisor
Supervisory personnel

Welding (7)

Maintenance mechanic
Mechanic, auto body
Mechanic, automotive
Production & assembly worker
Sheet metal worker
Prod. machine mech.
Welder

Trouble Shooting (7)

Appliance repairman
Heating & air cond.
Mechanic, automotive
Prod. machine mech.
Service advisor
Supervisory personnel

Telephone Manner and Courtesy (6)

Cashier
Clerk
Bookkeeper
Secretary
Supervisory personnel
Waitress-hostess-receptionist

Pleasing Personality (6)

Cashier
Heating & air cond. tech.
Key punch operator
Salesman
Secretary
Waitress-hostess-receptionist

Plumbing (6)

Appliance repairman
Carpenter
Farm helper
Heating & air cond. tech.
Maintenance mechanic
Well driller

Merchandising (6)

Clerk
Farm helper
Grocery helper
Meatcutter
Salesman
Truck driver

Hydraulics Systems (6)

Aircraft mechanic
Draftsman
Heating & air cond. tech.
Maintenance mechanic
Mechanic, automotive
Production machine mechanic

Honesty (6)

Cashier
Clerk
Commercial photog.
Heat & air cond. tech.
Salesman
Waitress-hostess-receptionist

Carpentry (6)

Awning manufacturer
Farm helper
Foundry worker
Heat & air cond. tech.
Maintenance mechanic
Parts manager

Bookkeeping (6)

Bookkeeper
Cashier
Clerk
Salesman
Secretary
Waitress-hostess-receptionist

Accounting Procedures (6)

Bookkeeper
Cashier
Clerk
Parts manager
Secretary
Supervisory personnel

The preceding data serve only to accentuate skills which are used in many jobs. Customer service and relations was most common and it was felt by the staff that such jobs listed therein were appropriate.

Training in arithmetic and shop math appeared as a critical skill for nearly as many jobs, and at least an equal diversity of jobs.

It would seem to the staff that the "unprofessionalized" skills supersede the more professional trades and skills in terms of their commonality in the world of work.

CHAPTER III

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

SUMMARY

The purposes of the pilot study were to determine if vocational-technical educational curricula were adequate in a selected portion of the State of New Hampshire, and if they were not found adequate, to determine what could be done to correct the deficiencies.

The towns of Brookline, Derry, Hollis, Hudson, Nashua, Pelham, Salem, and Windham were chosen as a base from which a 27 percent sample of all businesses in the area was selected. A randomly stratified sample of 221 businesses were contacted and personnel in each were interviewed by the staff.

The sample businesses were selected from the New Hampshire Register and Legislative Manual and they included agricultural enterprises, heavy industry, restaurants, and service industries.

Respondents were interviewed by the staff using an interview schedule that had been pre-tested and revised for final use in the pilot study. The following data were compiled during the work of the study:

1. More than 55 percent of all employers questioned considered current programs inadequate for their purposes in terms of hiring qualified personnel.
2. There are newly specialized jobs for which no training is currently available, and there are previously specialized jobs for which very little training is available.
3. Current secondary and post-secondary school enrollments do not generally indicate an emphasis in training for the newly specialized jobs.
4. Employers were quick to indicate sales, mechanics, mathematics, supervisory and food service as training programs which should either be revamped or added to current curricula.

5. There was found a new emphasis on personality as it relates to education. Employers indicated that training in courtesy, manners, conversation, and other such areas was needed.

6. Employers are generally willing to help provide some type of training for interested students, particularly in student visitations and employment.

7. Job responsibilities have changed in number and complexity.

8. The above findings led employers to indicate a need for more intensive communication among business, education, and students.

CONCLUSIONS

The data gathered support the following conclusions:

1. Vocational-Technical students and employees must be prepared to accept newly created jobs or jobs for which they are replacing other employees.

2. Occupational education programs in the study area are inadequate for the purposes of a majority of the businesses contacted.

3. There is a lack of training for several specialized jobs which have required, and will require, several hundreds of personnel. Training programs or units are needed in the following areas:

   a. production machine mechanic
   b. supervisory personnel
   c. salesman
   d. carpenter
   e. production and assembly worker
   f. waitress-hostess-receptionist
   g. professionalized salesmanship
   h. customer service and relations
   i. carpentry and cabinet making
   j. spelling and penmanship
   k. shop math
   l. economy of profit and loss as it relates to production worker
   m. general orientation to businesses and job opportunities in the study area as presented by businesses
   n. supervisory skill training
   o. waitress training
   p. plastics and chemical technician's training
   q. foundry practice
   r. occupational merchandising

4. Employers in the sample population placed considerable importance on training for production and non-production workers, in the following areas:

   a. efficiency
   b. courtesy

c. conversation
d. manners
e. neatness

5. Employers in the respondent population considered the following additional interpersonal areas important:

    a. pride and enthusiasm in work
    b. pleasing personality and compatibility
    c. ambition, responsibility and honesty

6. There was a general willingness in the respondent population to provide students with the opportunity to observe business operations and secure part-time employment for educational purposes.

7. There was less willingness on the part of respondents to commit personnel, funds, and equipment to help train students for job competency.

8. In the respondent population, clerical, production and assembly, technical, and waitress-hostess-receptionist positions employed the greatest numbers of people.

9. The number of critical skills for most jobs was found to be large and diverse, indicating that employers, as a group, expect a wide background of training and experience in their personnel.

10. That core programs which train for clusters of job titles can, and should be, developed by local educational institutions.

11. That further training beyond the core programs must be provided for specific job titles.

12. The New Hampshire Department of Employment Security data have further established the need for training in some of the more specialized job titles.

13. There are many skill areas for which little or no secondary or post secondary training is offered in the study area, that are common to many jobs. The most significant skills were:

    a. customer service and relations
    b. mechanical aptitude
    c. arithmetic
    d. inventory control
    e. supervision of personnel

14.. There is a lack of communication of data among business, employees, and educational institutions relative to educational needs and provisions in the study area.

RECOMMENDATIONS

To help vocational-technical education meet the needs of business and industry as cited, and described by the study, the following recommendations are made:

1. The Division of Vocational-Technical Education with business and industry implement ways to maintain extensive and accurate communication with employers, employees, and local educational institutions.

    a. That the Division devise a questionnaire to be sent to employers in the State requesting specific recommendations for program modification.
    b. That the above questionnaire be distributed to employers in May and September of each year.
    c. That the results from the questionnaire be used to review current programs in vocational-technical education.

2. Institutions in, or proximate to, the study area should consider the possibility of offering programs, courses, or units at the secondary, post-secondary level, to prepare students in the following jobs or skills:

    a. Production machine mechanic
    b. Production and assembly worker
    c. Supervisor of personnel
    d. Salesman
    e. Carpenter-cabinet maker
    f. Waitress-hostess-receptionist
    g. Short order cook
    h. Customer service and relations

3. Institutions in the study area should provide not only technical training, but education in the development of personality as it applies to successful workmanship and service. Such developmental education should include:

    a. efficiency in doing one's job
    b. courtesy and manners toward others and its effect
    c. the importance of conversing with others
    d. the communication of instructions and policies
    e. the importance of personal neatness
    f. neatness in doing one's job
    g. the rewards for the individual who takes pride in and shows enthusiasm towards his work
    h. the importance of ambition, responsibility and honesty in obtaining satisfying, high paying jobs.

4. The preceding developmental units should be included in curricula as a part of each student's orientation to the working situation. Such units would be used to prepare the student for the expectations placed upon him.

5. Institutions in the study area should increase their efforts to incorporate the aid of business in providing training. Such aid might be solicited in the form of student meetings with businessmen, part-time student employment in the jobs for which he is preparing, and consultation of school administration with personnel in business and industry.

6. The Division of Vocational-Technical Education and local institutions in the study area should review the content of present curricula. The information presented under the job descriptions should be used to assess the adequacy of such curricula. Where inconsistencies exist, program and curricula modification should be considered.

7. Vocation-Technical education curricula should be made more flexible in terms of course length. The job descriptions reveal that for some jobs training periods may range in length from 2-200 weeks. In such cases the mean number of weeks of training for job competency could serve as a guide for course or unit length.

8. Students might be permitted to fully establish their own rate of study and training, thereby completing it in more or less time than other students having similar training.

9. Local institutions should review curricula offerings and assess the value of each program as contemporary with current needs. For jobs in which few people are employed, less emphasis should be given and for jobs such as clerical, production, technical and waitress-hostess-receptionist, more emphasis should be made.

10. Vocational-Technical educators and administrators must remind themselves of the demands created in business and industry:

    a. Students must have the salable skills to obtain jobs.
    b. Businesses are interested in job performance, not the employee's understanding of academic principles which are irrelevant to the performance of that job.
    c. The best students and the best employees are those for whom there is a necessity (money, position, security, happiness, satisfaction) to learn.

APPENDIX A

OPERATIONAL DEFINITIONS

LETTER TO EMPLOYERS SEEKING INTERVIEW

OPERATIONAL DEFINITIONS

1. Study Area - the towns and cities of Brookline, Derry, Hollis, Hudson, Nashua, Pelham, Salem, and Windham in the State of New Hampshire.

2. Selected Population - the 483 businesses and industries selected to participate in the pilot study. All are within the Study Area.

3. Business - operational unit in the Study Area which manufactures a product or provides a service.

4. Industry - operational unit in the Study Area which manufactures a product or provides a service.

5. Respondent - one of the 221 members of the selected population which were interviewed by the staff.

6. Vocational-Technical Education - programs and courses under the auspices of the Division of Vocational-Technical Education, The New Hampshire State Department of Education.

7. Occupational Education - education programs and courses training for jobs of less than professional classification.

The preceding are definitions of terms used within the context of this report and are presented here for the purposes of clarification. Their meanings, as applied to the study report, are consistent throughout the report.

UNIVERSITY OF NEW HAMPSHIRE

Durham, New Hampshire 03824

College of Agriculture
Agricultural Education
Taylor Hall

In cooperation with the State Department of Education, personnel of the University of New Hampshire will be conducting the survey whose purposes and values are explained in the enclosed abstract. From June 17, 1968, to September 1, 1968, we will be conferring with selected businesses, industries and services in southern New Hampshire to collect the data we require.

As one of those selected, we seek your permission to visit you or a member of your staff to discuss your employment characteristics in reference to the enclosed list of questions. During conference with you, our personnel will complete the survey collection instrument with the information you can provide.

The enclosed postcard designates the period during which we will be in your area. Please select a date and time which would be most convenient for you to meet with us for approximately two hours. Final arrangements will be confirmed by telephone.

Thank you.

Sincerely yours,

William H. Annis
Joseph E. Perrigo
Principal Investigators

WHA
JEP:dd

Enclosures

APPENDIX B

INSTRUMENT USED IN STUDY

B D HO HU N P S W
Code # ________

FORM I

Interviewer ____________ Date _____ Company Name ________________

Type of Business:

MFG
- Lumber & wood products ___
- Furniture & fixtures ___
- Stone & clay ___
- Primary metal ___
- Fabricated metal ___
- Electric products ___
- Machine & other ___
- Miscellaneous ___
- Food & kindred ___
- Textile products ___
- Apparel ___
- Print & pub ___
- Leather & products ___
- Paper ___
- Other ___

NON-MFG
- Transportation, commercial & utility ___
- Construction ___
- Farm ___
- Finance, insurance & real estate ___
- Trade ___
- Service & other ___

Number of employees in your business ____________________

ALL INFORMATION REQUESTED BELOW AND ON THE FOLLOWING PAGES IS IN SPECIFIC REFERENCE TO THE FOLLOWING GROUP OF YOUR EMPLOYEES (TO BE REFERRED TO AS GROUP "A"):

ALL JOB TITLES FOR WHICH SATISFACTORY WORK REQUIRES NO LESS THAN TWO WEEKS, NOR ANY MORE THAN TWO YEARS OF OCCUPATIONAL TRAINING.

1. How many of your employees fit into this group? _____

2. For what purposes do you hire most of your employees? (x)
   a. To meet the needs of company expansion _____
   b. To replace former employees _____
   c. Other (specify) ____________________

3. What job titles have you not filled during the past 2 years (July 1, 1966-June 30, 1968) that you could have filled had trained personnel been available? (i.e. What jobs went begging?)

TITLE	# You would have hired

B D HO HU N P S W
Code # __________

FORM II

4. Data for all Group "A" employees hired between July 1, 1966 and June 30, 1968.

(A) Title & No. hired	#	#	#
(B)	Hr__ Sal__ Comm__	Hr__ Sal__ Comm__	Hr__ Sal__ Comm__
(C) Basic Skills necessary (CES)			
(D) Prev. training ade. x%	10 25 50 75 75+	10 25 50 75 75+	10 25 50 75 75+
(E) Hired w/out CES	YES ___ NO ___	YES ___ NO ___	YES ___ NO ___
(F) First employment	20 40 60 80 80+	20 40 60 80 80+	20 40 60 80 80+
(A1) Training offered by your business			
(B2) Where offered	I___ O___ C: S:	I___ O___ C: S:	I___ O___ C: S:
(C3) # com. training			
(D4) Duration	weeks	weeks	weeks
(E5) Type training	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12

1=Apprentice 2=OJT 3=Company spon. Institute 4=In house class
5=Vo. Institute 6=Adult ed. 7=Manpower 8=Departmental training
9=High School 10=Correspondence 11=No organized training 12=Other

B D HO HU N P S W
Code #__________

FORM III

5. For all jobs within Group "A", if you expect training will be modified, or should be modified, for job competency during the next two years, indicate for which job titles and the characteristics of the modification:

TITLE	HOW MODIFIED

6. What job titles do you expect to fill for the next two years (July 1, 1968-June 30, 1970): (write "E" for expansion and "R" for replacement)

TITLE	NO.	TITLE	NO.

7. Should personnel in your business receive training in the area of personal development? ___ If so, which areas? (S=skilled, SS=semi-skilled, US=unskilled. Also indicate 1 for very important, 2 for somewhat important, 3 for unimportant.)

	S	SS	US		S	SS	US
Appearance				Courtesy			
Conversation				Neatness			
Self-expression				Efficient job performance			
Manners				Importance of speed & quality			

Other (specify) ____

____

8. Are the present Occupational Education programs in your area adequate?

Yes ____ No ____

9. What programs could local educational systems offer that would increase a person's employability with your business?

____

____

B D HO HU N P S W
Code # ________

FORM IV

10. Would your business be willing to help provide any of the above mentioned programs?

YES ____, NO ____.

11. If so, indicate in what way you would be willing to help: (x)

a. Student visit and observation ____
b. Employ interested students on part time basis ____
c. Students attend company orientation sessions ____
d. Release personnel to help local educational systems in both curriculum planning and classroom instruction ____
e. Hold "In House" training sessions with both your personnel and local educators participating ____
f. Pay tuition for employees enrolled in extension courses ____
g. Loan equipment to local institutions for instructional purposes ____
h. Financial contribution to help support a training program (State will pay up to $3.00 per hour for instructor, will you pay the remainder?) ____
i. We do not foresee a way to help ____
j. Other (specify)________________________________

COMMENTS: (on the questions, the form, the purpose, your personal feelings.)

copy: Yes____, No ____.

APPENDIX C

REVISED INSTRUMENT DEVELOPED FROM STUDY

PAGE 1

(SPELL IT CORRECTLY)

CONTACT__________ INT. _______ DATE _____ COMPANY NAME ____________

TYPE OF BUSINESS
(manufacturing)

lumber & wood ___
furn. & fixt. ___
stone & clay ___
primary metal ___
fab. metal ___
elec. pro. ___
miscell. ___
food & kindred ___
textile pro. ___
rubber pro. ___
apparel ___
print & pub. ___
leather & pro. ___
paper & pro. ___
other __________

(non-manufacturing)

transport. ___
comm. & util.___
construction ___
real estate ___
trade ___
finace & insur ___
farm ___
service ______________________
sales __________

1. How many persons are employed in this business? (ALL) _____

ALL FOLLOWING INFORMATION REQUESTED IS IN REFERENCE ONLY TO THIS GROUP OF JOBS (TO BE REFERRED TO AS "M" JOBS):

ALL JOBS FOR WHICH SATISFACTORY WORK REQUIRES AT LEAST TWO WEEKS OF SOME KIND OF TRAINING, BUT NOT MORE THAN TWO YEARS OF VOCATIONAL OR TECHNICAL TRAINING.

training of less than two weeks	our concern	training of more than two years

2. Of the (see question 1) employees, how many fit into this group? _____

3. Do you hire most of your employees for the purpose of expanding
your business _____
or to replace former employees _____

4. In this business, for what "M" jobs has it been most difficult to hire experienced or trained persons over the past couple of years? And, how many could you hire for each of these jobs at the present time?

________________________ ________________________

________________________ ________________________

COMMENTS:

5. For ALL jobs listed in question 4 supply the data requested.
If there are no jobs listed under questions 4 :
   a. For businesses with less than 7 "M" jobs, supply data for all jobs.
   b. For businesses with more than 7 "M" jobs, supply data for all jobs hired for over the past couple of years.

"M" job & no. employed			
What skills must a person have to be hired for this job?			
What additional skills are needed before job is well done? (Or..... what skills are taught by your business?)			
Where taught?	In___ Out___	In___ Out___	In___ Out___
	(IF OFFERED OUT HOUSE, COMPLETE UNDER QUESTION 11)		
Type of training	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

1=apprentice 2=OJT 3=company sponsored institute 4=in house class
5=vocational or technical institute 6=adult education 7=manpower
8=correspondence course 9=none

Comments:

6. For each of the following areas of personality or personal development, indicate its relative importance for the persons employed in this business. (1=very important 2=somewhat important 3=unimportant) If you wish, separate "PRODUCTION" workers from "OTHER" workers.

	"PRO"	"OTHER"		"PRO"	"OTHER"
ability to converse	______	______	public speaking	______	______
neatness on job	______	______	willingness	______	______
attendance at work	______	______	cooperation	______	______
manners & courtesy	______	______	pride in work	______	______
personal appearance	______	______			

Are there other areas like these that you consider particularly important?

____

____

7. Are the present programs of Occupational Education in this area adequate for your purposes?

YES _____
NO _____
DON'T KNOW _____

8. What would you recommend that local educational systems do to be of most benefit to you? Are there programs that you would like to have offered?

____

____

9. Indicate any of the following ways that you might be willing to help provide training or insight for students interested in this type of business:

	We Do	We Would
a. Would you be willing to have students periodically observe the operation of your business, and discuss it with you?	______	______
b. Would you be willing to employ interested students on a part-time basis for OJT?	______	______
c. Would you, or other personnel, be willing to advise local educators and school administrators about some of the things you have mentioned in your answers?	______	______
d. Would you be willing to hold classes here, periodically, with local teachers and your own personnel teaching and/or supervising?	______	______
e. Would you be willing to provide tuition for your employees to attend courses or schools, if the instruction would make them of more benefit to you?	______	______
Can you suggest other similar ways that you might be able to help?	______	______

____

10. List any sources of training information used by this business, or any sources of which you are aware.

CONTACT	POSITION	COMPLETE BUSINESS ADDRESS

11. Attitude of the person interviewed toward the work being done in this research: (YOU ARE NOT TO ASK THIS.....IT IS YOUR ASSESSMENT OF THEM.)

Enthusiastic	__	Helpful	__	Concerned	__	Patient	__
Unenthusiastic	__	Not helpful	__	Unconcerned	__	Impatient	__

(check one word in each column)

12. Do you wish to receive a copy of the report that will result from this research?

YES _____
NO _____

COMMENTS:

APPENDIX D

POST SECONDARY
SCHOOLS & PROGRAMS IN 20 MILE PROXIMITY
TO STUDY AREA

SCHOOLS AND PROGRAMS

Accounting	Hesser Business College
Accounting and Business Administration	Hesser Business College New Hampshire College of Accounting & Commerce
Accounting - Junior	Hesser Business College
Automotive	New Hampshire Vocational Institute - Manchester
Barbering	New Hampshire Barber College
Bookkeeping, Senior	New Hampshire College of Accounting & Commerce
Business Administration	Nashua Business College New England Aeronautical Institute
Business - General	Hesser Business College
Business Management	New Hampshire College of Accounting & Commerce
Clerical Procedures	Hesser Business College
Data Processing	Automation Training Schools Electronics Computer Programming Institute of New Hampshire
Engineering Technology	New England Aeronautical Institute
Hairdressing	Granite State Beauty School Houle's Beauty Academy LaBaron's Hairdressing Academy (Manchester and Dover) Shirley's School of Cosmetology
Heating, Refrigeration, & Air Conditioning	New Hampshire Vocational Institute - Manchester
Industrial Electricity	New Hampshire Vocational Institute - Manchester
Industrial Electronics	New Hampshire Vocational Institute - Manchester
Machine Shop	New Hampshire Vocational Institute - Manchester
Mechanical Drafting	New Hampshire Vocational Institute - Manchester

Mechanical Maintenance	New Hampshire Vocational Institute - Manchester
Nursing - Practical	St. Joseph's Hospital (Nashua)
Nursing - Registered	Elliott Hospital (Manchester) Sacred Heart Hospital (Manchester)
Pilot Training	Nashua Aviation & Supply Company, Inc. New England Aviation Corp.
Real Estate	Lee Real Estate Institute (offered at several locations in New Hampshire)
Secretarial - 1 year	New Hampshire College of Accounting & Commerce
Secretarial - Administrative	New Hampshire College of Accounting & Commerce
Secretarial - Finishing	New Hampshire College of Accounting & Commerce
Secretarial - Executive	Castle Secretarial School Hesser Business College Nashua Business College New Hampshire College of Accounting & Commerce
Secretarial - Junior	Hesser Business College
Secretarial - Legal	Castle Secretarial School Hesser Business College New Hampshire College of Accounting & Commerce
Secretarial - Medical	Castle Secretarial School Hesser Business College New Hampshire College of Accounting & Commerce
Stenographic	Hesser Business College New Hampshire College of Accounting & Commerce
X-Ray Technology	Elliott Hospital (Manchester) Nashua Memorial Hospital Notre Dame Hospital Sacred Heart Hospital
Welding	New Hampshire Vocational Institute - Manchester

APPENDIX E

LIST OF RESPONDENTS
WHO PARTICIPATED IN
PILOT STUDY

Brookline

Hall Mfg. Co.

Hollis

Clinton's Greenhouse
Fred Allen
A. W. Williams
Duncan E. Wright
Contoocook Valley Telephone Co.

Windham

Brown & Sons
Jerry's Tropical Fish
Turner's Dairy
Roger's Service Station
Armstrong Artesian Well

Pelham

Pelham Woodcraft, Inc.
Camp Runels
Merrimack Optical Co.
State Line Motors
Pelham Inn
The Fixit Shop
Petite Beauty Shop

Derry

Chism Machinery Co.
Belanger Woodworking Co.
Derry News and Salem Enterprise
Standard Sash & Door
Tech Consolidated, Inc.
C. H. Clement
James Matteuzi
Merry Marine & Ski
Ralph Cousins
Holmes & Wheeler
Hood Farm
Veteran's Furniture
Super Save
Chanticleer Lodge & Restaurant
Friendly Ice Cream
Kado Data Processing
Gannon Oil Co.
Shamrock Cleaners
Fuelite Gas Service
First National

Salem

Salem Salvage Co.
Adams Poultry Farm
Salem Building Supply Co., Inc.
Ackerman Lumber Co.
David Vartanian
Winmill Equip. Co.
Robert Hall
Berge's Real Estate & Construction Co.
Elrich Shoes, Inc.
Salem Animal Hospital
Elliot's Carpets
Rockingham Race Track
Sulley's Radio & T.V.
Salem Trailer Sales
Hirsch Welding
K-D Wood Products Co., Inc.
Zurbach Steel & Aluminum
Larry's Woodworking & Country Store
Granite State Potato Chip
Brookside Motel
Canobie Auto Body
Howard Johnson's Restaurant
Grossman's of N. H.
Don's Outboard
Sanel's Auto Parts, Inc.
Canobie Lake Park
May's Flower Center
Auto Lab
Gurry's General Store

Hudson

Grandmaison Printing Co.
Robert Levesque, Inc.
Contact, Inc.
Fairview Convalescent Home
RdF Corp.
Hogan's Landscape & Garden Center
Ray's Superette
Benson Wild Animal Farm, Inc.

Nashua

Nashua Brass
Indian Head Casket Co.
Phil's Awning Co.
Alexander's
Corriveau-Routhier, Inc.
Red-Mix
Nashua Auto Body
MacMulkin Chevrolet
Rainbow Sign

Nashua (cont'd)

Nashua Plastics
Nashua Building Contractors, Inc.
Shapiro's Express, Inc.
Putnam Needle
Associated Business Machine
Nashua Aviation & Supply Co., Inc.
Beebe Bros. Rubber Co.
Sanders Associates
Blake's Restaurant
Royal Reg. Co.
Brown & Co.
Olde Coach Inn
PK's Landscaping, Inc.
Indian Head Construction Co.
The Looking Glass
Young's Sales & Service
Goodale Bicycle Shop
Public Service
Banner Photo Service
Charles Demers Co.
Palm Dress Manufacturing Co.
Lee & Sons
Nashua Foundries
Henri's
F. W. Webb Co.
Amherst St. Market
Whitney Screw Corp.
Shattuck Mattress
Bergeron & Son
Dionne Bros.
Servomation of Northern New England, Inc.
Nashua Wallpaper
Art Studio
H & G Restaurant Supply & Equip.
Desclos Lettering
Bud Tate Hi Fi
Quality Saw
Gas Service
Francour Bakery
Manzi Dodge
Pete's Auto Sales
Sears & Roebuck
Spaulding Metal Works, Inc.
Nashua Animal Hospital
Osgood Hardware
Nashua Wholesale Grocers
Puritan Luncheonette
Gate City Bike Shop
Improved Machine
Mercury Travel
Lynch's
Nashua Sand & Gravel Co.
City Coal
Taggart Fuel Corp.
Maxfield Press
Healthware Stainless Steel Co.
Continental Beauty Salon
Public Finance
C. H. Avery Co., Inc.
Gate City Gardens
Granite State Tanning Co.
Johns-Manville Corp.
Edgecomb Steel of New England
Horton & Hubbard
Cabana Sausage Co., Inc.
J. K. Stellos
John C. Dobens
WOTW Radio
Kesslen & Son
Granite State Color Center
Jeanotte's Ice Cream
Gate City Monument
Howard Johnson
Nashua Servo Controls
X - L Corp.
Koppers Wood Co., Inc.
Lucky Strike Ginger Ale
John's Marine
Consolidated Foods
Durocher's Ice Cream
Tulley Buick & Pontiac
One-hour Martinizing
Modern Hotel
Overhead Door Products Corp.
Nashua Electrical Engineering Co.
Nashua Tractor
Gregg & Sons
Tom's Delicatessen
Johnson Electric Supply Co.
Sprague Electric Co.
Seaboard Loans
Maine Mfg. Co.
Newton Mfg. Co., Inc.
Pennichuck Water Works
Kessler Farms, Inc.
Indian Head Millwork Corp.
Fab-Braze Corp.
Nim-Cor, Inc.
Nashua Telegraph
Nashua Unit for Retarded Children
Gateway Motors
Heat, Inc.
Bradlee's
Jones Express
Nashua Lumber Co.

Nashua (cont'd)

Merrimack Farmers Exchange
Public Service
Champagne's Supermarket
Sherwin-Williams Paints
"88" Restaurant
Technical Design Service
Sportwelt Shoe Co., Inc.
Bemis Bros. Bag Co.
Connor & Sons
Travel World, Inc.
Hampshire Chemical Corp.
Downtown Lincoln-Mercury, Inc.
New England Bobbin & Shuttle Co.
CP Lovell, Inc.
Nutting's Music Store
Trim 'n Style
Isadore Beauty Salon
Emerson Rug Co.
Nashua Industrial Machine Corp.
Family Sports Center
Nashua Woodcraft
Nashua Auto Co.
Eddie Labrie, Inc.
Nashua Dental Lab
Hall Refrigeration
Bruce Construction
Connare, Inc.
Thunderbird Motel
Green Ridge Turkey Farm

Selected Bibliography

1. Baker, Richard. "Curriculum for the World of Work." The Agricultural Education Magazine, Vol. XXXIX, July, 1966, pp. 6-9.

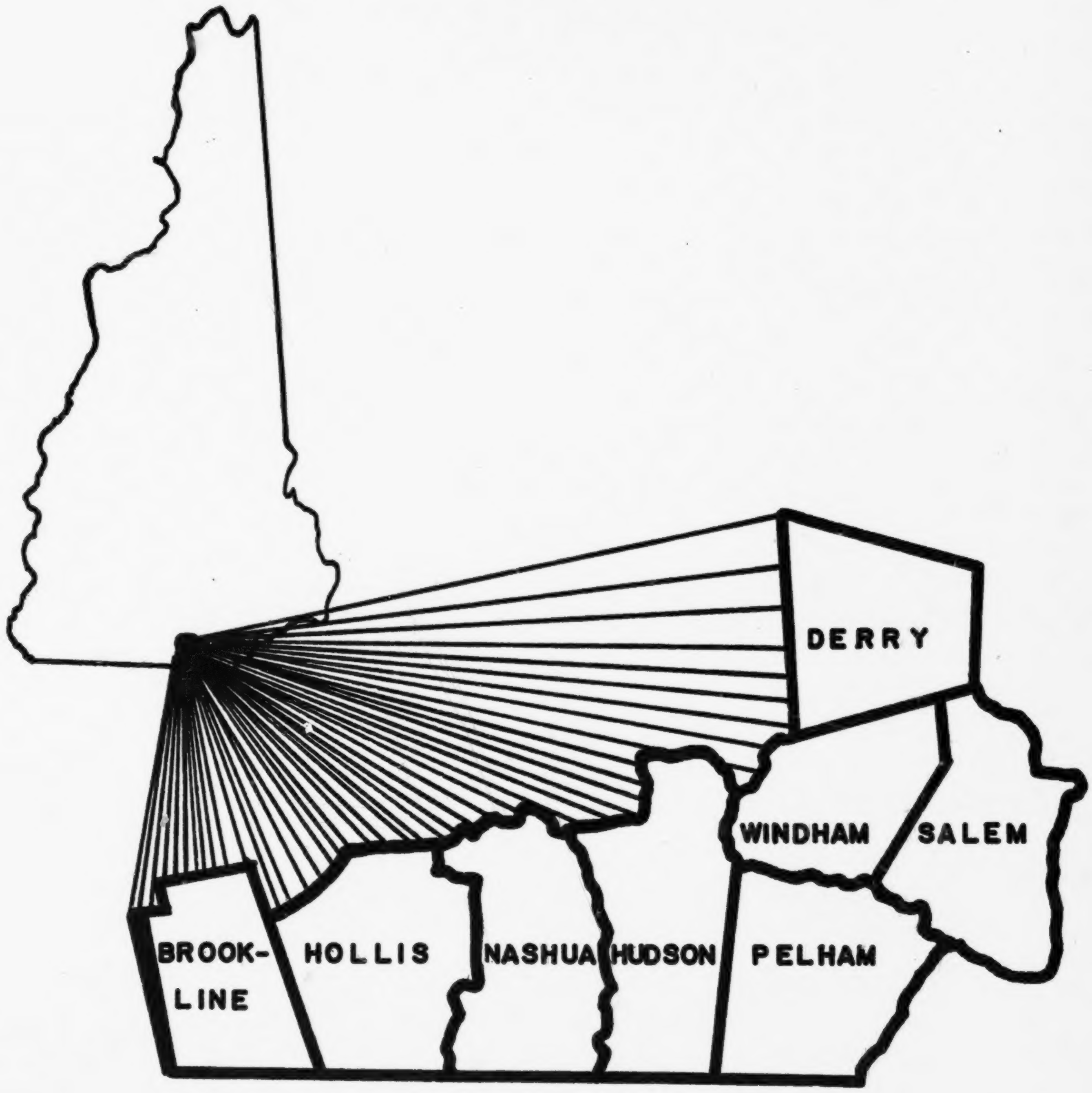
2. Burt, Samuel M. "Industry Participation in Local Vocational and Technical Education Programs." Research in Vocational and Technical Education. Madison: Center for Studies in Vocational Technical Education, The University of Wisconsin. 1967, pp. 223-234.

3. Linson, Marvin G. "State Leadership Responsibilities in Planning and Conducting Pilot Programs." Report of a National Seminar on Agricultural Education Program Development and Research. Columbus: The Ohio State University, Center for Vocational and Technical Education. August, 1965, pp. 103-115.

4. Roy, William J., Supervisor. Economic Changes in Each New Hampshire County 1957 to 1965. Concord: Department of Employment Security. May, 1965, 120 pp.

5. Roy, William J., Supervisor. Employment and Wages by County in New Hampshire. Fourth Quarter, 1967 Year Summary Tables. Concord: Department of Employment Security. July, 1968, 28 pp.

6. Venn, Grant. "Occupational Education - A Lifetime Concern." American Vocational Journal. XLI, November, 1966, pp. 16-17.


DERRY
WINDHAM
SALEM
BROOK-
LINE
HOLLIS
NASHUA
HUDSON
PELHAM